



Ministry of Higher Education and Scientific Research

Northern Technical University

Kirkuk Medical Technical Institute

Pharmacy Techniques Department

Academic Program Description Model
Department of Pharmacy techniques

2025- 2026

Technical Medical Institute / Kirkuk
Scientific Department: Pharmacy Techniques
Academic System: Courses
Academic or Professional Program Title: Technical Diploma in Pharmacy
Final Degree Title: Technical Diploma in Pharmacy
Description Date: 2025 \ 9 \ 5
File Completion Date: 2026 \ 6 \ 10

Signature:



Head of Department: Lecturer. Zainab Khairullah Seediq

Date: 2026 \ 6 \ 10

Signature:



Scientific Assistant: Asst. Prof. Dr. Ali Najdat Nasrat

Date: 2026 \ 6 \ 10

The file was reviewed by the Quality Assurance and University
Performance
Division

Director of Quality Assurance and University Performance:
Assistant Lecturer. Mohammed Hakim Khalaf

Date: 2026 \ 6 \ 10

Signature:




Asst. Prof. Dr. Lizan Medhat Mohammed
Dean

2026 \ 6 \ 10

1. Program Vision

Excellence in performance and achieving leadership in technical education to meet the requirements of the job market.

2. Program message

Preparing a cadre of intermediate-level pharmacists capable of providing pharmaceutical and medical services that keep pace with scientific advancements, and increasing the number of intermediate-level pharmacists to provide pharmaceutical services at a level that meets internationally recognized quality standards in healthcare institutions.

3. Program objectives

Graduating competent technical staff to work in the field of pharmaceuticals and pharmacy under the supervision of the pharmacist and in the field of pharmaceutical and chemical industries, whether in the state or the private sector. These staff members will be able to work in pharmacies, read prescriptions, prepare and dispense medicines, work in ,drug warehouses and stores in factories, and manage the stages of storage classification and arrangement.

4. Program accreditation

Nothing

5. Other external influences

Nothing

6. Program structure

Program structure	Number of courses	Study unit	Percentage	* comments
University requirements	10	20	%17.24	8 Compulsory 2 Optional
requirements Institute	5	14	%12.06	5 Compulsory
Department requirements	25	82	%70.68	21 Compulsory 4 Optional
Summer training	Complete			

7. Program Description

Level 1 courses

Type of requirement	Course Code	Course Name	Course Name	Lecture Hours	Practical Hours	Number of units
University	NTU 100	Democracy and Human Rights	Democracy and human rights	2	0	2
	NTU 101	English language 1	English Language 1	2	0	2
	NTU 102	Computer 1	Computer 1	1	1	2
	NTU 103	Arabic language 1	Arabic language 1	2	0	2
	NTU 104	Physical Activity	Sports (optional)	1	1	2
	NTU105	French Language	French language (optional)	2	0	2
Total required university units				12		
Institute	MTIK 106	Physiology	Physiology	2	2	4
	MTIK 107	Anatomy	Anatomy	2	2	4
	MTIK 108	Safety in lab & workshop	Laboratory and workshop safety	2	0	2
	MTIK 109	Medical terminology	Medical terminology	2	0	2
Total units, required institute requirements				12		
department	PHT 112	Principles Pharmacy	Principles of Pharmacy	2	2	4
	PHT 113	Basics of Organic Chemistry	Fundamentals of Organic Chemistry	2	2	4
	PHT 114	Analytical Chemistry	Analytical Chemistry	2	2	4
	PHT 115	Pharmaceuticals Calculation	Pharmaceutical accounts	2	2	4
	PHT 116	Organic Chemistry	Organic Chemistry	2	2	4
	PHT 117	Biochemistry	Biochemistry	2	2	4
	PHT 118	First Aid	First aid (optional)	2	0	2
	PHT 119	Psychology	Psychology (optional)	2	0	2
	PHT 120	Microbiology	Microbiology	2	2	4
Total Units Required Department				32		

Total Units Level 1	56
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Level Two Courses

Type of requirement	Course Code	Course Name	Course Name	Lecture Hours	Practical Hours	Number of units
University	NTU 201	Computer 2	Computer 2	1	1	2
	NTU 202	Arabic language 2	Arabic Language 2	2	0	2
	NTU 203	Crimes of the Baath regime in Iraq	Crimes of the Ba'ath regime in Iraq	2	0	2
	NTU 204	Professional Ethics	Professional ethics	2	0	2
Total required university units				8		
Institute	MTIK 202	Biostatistics	Life statistics	2	0	2
Total units, required institute requirements				2		
Department	PHT 203	Pharmaceutics	Pharmacists	2	2	4
	PHT 204	Industrial Principles	Industrial principles	2	2	4
	PHT 205	Principles Of Pharmaceutical Chemistry	Principles of Pharmaceutical Chemistry	2	2	4
	PHT 206	Principles of Drugs	Principles of Medicine	2	2	4
	PHT 207	Medicinal Plants and Natural Products	Medicinal plants and natural products	1	2	3
	PHT 208	Basics Of Therapeutic Application	Fundamentals of therapeutic applications	1	2	3
	PHT 209	Toxicology	poisons	2	0	2
	PHT 210	Proposal	Research project	0	2	2
	PHT 211	Pharmaceutical Formulation	Pharmaceuticals	2	2	4
	PHT 212	Industrial Pharmacy	Industrial Pharmacy	2	2	4
	PHT 213	Pharmaceutical Chemistry	Pharmaceutical Chemistry	2	2	4
	PHT 214	Pharmacology	pharmacology	2	2	4
	PHT 215	Pharmacognacy	drugs	1	2	3
	PHT 216	Therapeutics Application	therapeutic applications	1	2	3

	PHT 217	Community Health	Community health (optional)	1	0	1
	PHT 218	Communication Skills	Communication skills (optional)	1	0	1
Total Units Required Department				50		
Total Units Level Two				60		

8. Expected learning outcomes of the program

First Knowledge:

This refers to the accumulated knowledge and theory that the student must understand, be able to recall, and explain:

❖ Basic medical knowledge:

- Understanding the principles of anatomy and physiology To understand how drugs affect different body systems.
- Understanding the fundamentals of microbiology Immunology is the science of understanding the nature of infectious diseases and the mechanism of action of antibiotics and vaccines.

❖ Specialized pharmaceutical knowledge:

- **Pharmacology:** Knowing the drug groups, their scientific and trade names, indications for use, and common side effects.
- **Pharmacists:** Understanding the different pharmaceutical forms (topical, oral, injectable) and the physics of the drug (solubility, stability, and absorption).

❖ Administrative and organizational knowledge:

- **Professional rules and ethics:** Knowledge of local and international legislation governing the dispensing of medicines, especially controlled and psychiatric medicines.
- **Drug inventory management:** Understanding scientific storage systems (such as the cold chain for biological drugs) inventory methods, and validity assessment.

Second: Skills

It is the ability to apply theoretical knowledge and translate it into practical applications, and it is divided into several aspects:

❖ **cognitive and mental skills**

- **Pharmaceutical accounts:** The ability to calculate doses with extreme accuracy based on weight or age, and to calculate dilution ratios for central solutions.
- **Rapid auditing and analysis:** Reading and decoding complex prescriptions, and identifying potential errors in dosages or drug interactions before dispensing.

❖ **practical and professional skills**

- **Pharmaceutical composition:** Preparing synthetic medicines (such as specialized emulsions and ointments) accurately and according to good laboratory standards .
- **Sterilization techniques:** Assistance in preparing intravenous solutions, artificial nutrition, and cancer drugs within hospital sterilization rooms.
- **Technical operation:** Using modern software to manage pharmacies and electronic medical records for patients.

❖ **Communication and interaction skills**

- **Patient guidance:** Simplifying complex medical information for the patient (method of use, dosage times, and symptoms (that warrant stopping the medication.
- **Medical inter-communication:** The ability to communicate professionally and clearly with doctors and nurses to resolve any issues with the prescription.

Third: Values

This is the emotional, ethical, and behavioral aspect that ensures the safe and humane practice of the profession, and is considered the most important in the health sector:

❖ **Honesty and professional responsibility:**

- Absolute adherence to accuracy is essential; an error in dosage could threaten a person's life.
- Immediately acknowledge medication errors (if they occur) and follow correction protocols without hesitation.
- ❖ **Maintaining confidentiality and privacy:**
 - Protecting patients' secrets and medical data and not sharing them except in the context of official treatment.
- ❖ **Empathy and patient-centered care:**
 - Show good listening skills and patience, especially with the elderly, people with special needs, or patients in cases of severe anxiety.
- ❖ **Integrity and resistance to pressure:**
 - Refusal to dispense controlled drugs (narcotics or psychotropic substances) without official prescriptions that meet the requirements, regardless of the pressure.
- ❖ **Self-development and continuous learning:**
 - Belief that the science of pharmacy is renewed daily, and commitment to following up on drug updates, drug withdrawals, and new medical warnings.

9. Teaching and learning strategies

The instructor explains the theoretical material on the board using a slide projector , paper lectures, educational kits, and summer systematic training in hospitals.

10. Assessment Methods

Daily, termly , and final tests ; weekly report submission

11. Faculty**Table of the number of holders of higher degrees in the Department of Pharmacy Technology**

1	PhD	6
2	Master's	18
the total		24

Table of the number of holders of scientific titles in the Department of Pharmacy Technology

1	assistant professor	3
2	teacher	5
3	Assistant teacher	16
the total		24

Names of faculty members of the Pharmacy Technology Department for the academic year 2025-2026

Notes	Specialization flour	Scientific title	Certificate	the name	T
Head of Department	Molecular biology	teacher	PhD	Zainab Khairallah Sadiq	1
Head of Nursing Department	Chemistry	assistant professor	PhD	Kalawish Nouri Taher	2
teaching	Medical microbiology	teacher	PhD	Yuksel Ezzeldin Sweid	3
teaching	Biochemistry	teacher	PhD	Noha Hamza Khader	4
teaching	Jurisprudence and its principles	assistant professor	PhD	Jamal Fateh Ali	5
sick leave	Analytical Chemistry	teacher	PhD	Najwa Moussa Latif	6
teaching	Clinical diseases	assistant professor	Master s'	Ozdan Akram Gharib	7
Head of Scientific Promotions Unit	Organic Chemistry	teacher	Master s'	Shanay Rajab Hassan	8

Head of the Studies and Planning Division	Mechanical Engineering	Assistant teacher	Master s'	Hassan Muhammad Nour El-Din	9
teaching	Life Sciences	Assistant teacher	Master s'	Cole Jimin Medhat Abdullah	10
teaching	Molecular biology	Assistant teacher	Master s'	Shen Ai Ahmed Mohamed	11
Head of Quality Assurance Division	Veterinary medicines	Assistant teacher	Master s'	Mohammed Hakim Khalaf	12
Biological Safety and Security Unit officer	Medical diagnoses	Assistant teacher	Master s'	Ghassan Jalal Aswad	13
Laboratory supervisor	Science/Environm ent	Assistant teacher	Master s'	Alwan Qader Ahmed	14
Planning Unit	Physics	Assistant teacher	Master s'	Asia Qader Ahmed	15
Continuing Education Unit	Medical diagnoses	Assistant teacher	Master s'	Mohammed Khader Bayez	16
teaching	Arabic language/literature	Assistant teacher	Master s'	Hanan Mohammed Nasser	17
teaching	Life Sciences/Parasitol ogy	Assistant teacher	Master s'	Marwa Abdulkarim Bakr	18
Head of Higher Education Fund/Finance	Financial and banking sciences	Assistant teacher	Master s'	Khodair Ahmed Hamid	19
Head of Scientific Affairs Division	Physics	Assistant teacher	Master s'	Sadiq Badr Nouri	20
teaching	Life Sciences	Assistant teacher	Master s'	Ummayma Muhi Abdulkarim Al-Din	21
Head of Quality Assurance Unit	Agricultural Sciences/Horticult ure	Assistant teacher	Master s'	Yildirim Fikret Abdulrazak	22
teaching	Agricultural Sciences/Irrigatio n and Drainage	Assistant teacher	Master s'	Inas Jamil Abdulwahab	23
Department Decision Maker	engineering	Assistant teacher	Master s'	Hassan Ismail Reda	24

Professional Development

Guidance for faculty members

The professional development of faculty members is a cornerstone for ensuring the quality of education and enhancing the outcomes of the Pharmacy Technology Department. It aims to equip the teaching staff with modern skills and advanced teaching methods, including guiding new members to adapt to the department's academic and administrative environment.

faculty members include the following elements:

First introductory meeting

- Introduction to the department's vision, mission, and goals
- Review of the department's organizational structure and committee tasks
- Providing the college handbook and the pastor's handbook

Administrative and academic support

- Provide an explanation of the calendar system, schedules, and course descriptions.
- Introduction to the quality system and reporting and documentation requirements.
- Assistance in preparing lectures and using learning management systems.

Research and academic guidance

- Identifying research paths appropriate to their specialization.
- Informing them about the procedures for publishing and submitting for research funding.
- Encouraging them to participate in scientific conferences and seminars.

and social guidance

- Introducing them to the culture and values of the educational institution.
- It facilitates their integration into the department's environment through informal meetings.

12. Admission Criteria

1. The student's admission criteria are based on central admission within the Ministry's plan, the student's branch in preparatory school, his grade and his desire, after the student has been interviewed by the institute.

- 2. The results of the medical examination indicate that the student is healthy and fit to study in the department.**
- 3. Desire.**

13. Key sources of information about the program

- 1. Educational resources.**
- 2. External sources (Internet).**
- 3. Scientific research and its latest developments.**
- 4. Textbooks.**

Program Skills Plan	
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Sample assignments for faculty members in the Pharmacy Technology Department

Notes	Total hours of assignment	Evening classes					Morning study					Medical Technical Institute			Formation name	
		Over time	quorum	Study materials			Over time	quorum	Study materials			Pharmacy techniques			Name of the scientific department	
				Number of hours assigned	practical	Theory			Number of hours assigned	practical	Theory	Specialization	Certificate	Scientific title	Full name	T
Head of Department + Examination Committee	16		8	12	Therapeutic applications 8=4*2	Therapeutic applications 1*4=4		4	4		Therapeutic applications 1*4=4	Molecular biology	PhD	teacher	Zainab Khairallah Sadiq	1
Department Head + Examination Committee / Workload in the Nursing Department												engineering	Master	Assistant teacher	Hassan Ismail Reda	2
Unit Head + Absences Committee	12		12	4		Life statistics 2*2=4		8	8		Life statistics 2*4=8	engineering	Master	Assistant teacher	Hassan Muhammad Nour El-Din	3
Supervision of graduation research	16						6	10	16	Physiology 2*4=8	Physiology 2*4=8	Microbiology	PhD	teacher	Yuksel Ezzeldin Sweid	4
My teaching experience in the ,department is over fifty years old .plus I supervise graduation research	32	4	12	16	Physiology 8=4*2	Physiology 2*4=8	8	8	16	Physiology 2*4=8	Physiology 2*4=8	Life Sciences	Master	Assistant teacher	Shen Ai Ahmed Mohamed	5
My teaching experience in the ,department is over fifty years old .plus I supervise graduation research	16		12				8	8	16	Organic Chemistry 2*4=8	Organic Chemistry 8=4*2	Chemistry	Master	teacher	Shanay Rajab Hassan	6
My teaching experience in the ,department is over fifty years old .plus I supervise graduation research	32	4	12	16	Biochemistry 8=4*2	Biochemistry 2*4=8	8	8	16	Biochemistry 8=4*2	Biochemistry 2*4=8	Pathological analyses	PhD	teacher	Noha Hamza Khader	7
Teaching assistant in the department Head of the absences committee +	24	4	12	16		Arabic language 8=4*2 Professional ethics 8=4*2		8	8		Arabic language 4=2*2 Professional ethics 4=2*2	Islamic law	PhD	assistant professor	Jamal Fatch Ali	8
Unit Head + Examination Committee	32	8	8	16	Industrial Pharmacy 8=4*2	Industrial Pharmacy 8=4*2	8	8	16	Industrial Pharmacy 2*4=8	Pharmacy 2 * 4 = 8	physics	Master	Assistant teacher	Sadiq Badr Nouri	9
+ Examination committee graduation research supervision	32	4	12	16	Pharmaceutica :l calculations 8=4*2	Pharmaceutical calculations: 2*4=8	6	10	16	Pharmaceutical :calculations 8=4*2	Pharmaceutical calculations: 2*4=8	Life Sciences	Master	Assistant teacher	Marwa Abdulkarim Bakr	10
Unit Manager + Graduation Research Supervision	8		12					8	8		Medical terms 2*4=8	Physics	Master	Assistant teacher	Asia Qader Ahmed	11
Unit Manager + Graduation Research Supervision	32	4	12	16	Pharmaceutica l Chemistry 8=4*2	Pharmaceutical Chemistry 2*4=8	8	8	16	Pharmaceutical Chemistry 2*4=8	Pharmaceutical Chemistry 2*4=8	Medical diagnoses	Master	Assistant teacher	Ghassan Jalal Aswad	12
Unit Manager + Graduation Research Supervision	32	4	12	16	Pharmacology 8=4*2	Pharmacology 2*4=8	8	8	16	Pharmacology 8=4*2	Pharmacology 2*4=8	Medical diagnoses	Master	Assistant teacher	Mohammed Khader Bayez	13

Part-time PhD	6		12					6	6		Arabic language 6=3*2	Arabic	Master	Assistant teacher	Hanan Mohammed Nasser	14
Assistant Dean for Scientific Affairs	8		8	4		Life statistics 2*2=4		4	4		Life statistics 2*2=4	Electronics and Communicati ons	PhD	assistant professor	Ali Najdat Nusrat	15
Part-time PhD	8		12					8	8	Organic Chemistry 2*4=8		Life Sciences	Master	Assistant teacher	Ummayma Abdulkarim Muhi Al- Din	16
Supervision of graduation research	12		12					12	12		English language 4=2*2 Medical terminology 8=4*2	environment	Master	Assistant teacher	Alwan Qader Ahmed	17
My teaching experience in the department exceeds fifty years, plus I supervised three graduation .research projects	12		12	4		First aid 2*2=4	4	4	8		First aid 2*4=8	Clinical diseases	Master	teacher	Ozdan Akram Gharib	18
Unit Manager + Graduation Research Supervision	16		12	8		English language 8=4*2		8	8		Professional ethics 8=4*2	Agricultural Sciences	Master	Assistant teacher	Yildirim Fikret Abdulrazak	19
Manager + 2 hours of evening work to supplement morning shift	12		12	4	Math 1 * 2=2	Math 1*2=2		10	8	Math 1*4=4	Math 1*4=4	Computers/Pr ogramming	Master	Assistant teacher	Alaa Younis Ahmed Union	20
Faculty member in the Department of Community Health	24	4	12	16		Medical terms 2*4=8			8	Therapeutic applications 8=4*2		Life Sciences	Master	Assistant teacher	Maad Abdullah Mansour	21
Manager + Graduation Research Supervision	8		12					8	8		Pharmaceutical preparations 2+4=8	Agricultural Sciences	Master	Assistant teacher	Inas Jamil Abdul Wahab	22
/ lecturer / University of Kirkuk College of Pharmacy / Head of the Department of Pharmaceutical Chemistry	24		12	12	Drugs 2*4=8	Drugs 1*4=4			12	Drugs 2*4=8	Drugs 1*4=4	Pharmaceutic al Chemistry	PhD	teacher	Amid Mohsen Hassan	23
Head + Graduation Research + Supervision Hours of Evening Practical Work 4 to Complete Morning Workload	24	8	12	20	Pharmaceutica l preparations 8=4+2	Pharmaceuticals 8=4+2 Community Health 4=4*1	-4	8	4		Community health 4=4*1	Veterinary medicines	Master	Assistant teacher	Mohammed Hakim Khalaf	24
Teaching assistant in the Nursing Technology Department	6		12						6		Arabic language 6=3*2	Psychology	Master	Assistant teacher	Mona Jabbar Ghloub	25
Supervision of 3 graduation research projects + 4 hours of evening practical work to complete the morning workload	12		12	4		First aid 2*2=4		8	8		First aid 2*4=8	Life Sciences	Master	Assistant teacher	Cole Jimin Medhat Abdullah	26
Manager + 2 hours of evening work to supplement morning shift	12		12	4	Math 1 * 2=2	Math 1 * 2=2		10	8	Math 1*4=4	Math 1*4=4	Financial sciences	Master	Assistant teacher	Khodair Ahmed Mohammed	27
Unit Head / Instructor, Department of Nursing Technologies	8		12						8		English language 8=4*2	English language	Master	Assistant teacher	Hero Siamand Mamand	28
Unit Officer	16		12	8		Democracy and human rights 2*4=8			8		Democracy and human rights 2*4=8	law	Master	Assistant teacher	Mohammed Abdullah Saeed	29
Assistant Dean for Administrative Affairs	8								8		Democracy and human rights 2*4=8	law	PhD	teacher	Aws Khalil Ibrahim	30

I teach at the College of Health and .Medical Technology in Kirkuk	16	4	12	16	Organic Chemistry 8=4*2	Organic Chemistry 8=4*2						Chemistry	Master	Assistant teacher	Iyad Jirjis Dhu al-Kifl	31
Unit Manager							2	10	12	Pharmaceutical :calculations 8=4*2	English language 4=2*2	computer	Master	Assistant teacher	Ahmed Raad Abbas	32
Teaching position at the Center for Research and Renewable Energy									8	Pharmaceutical preparations 8=4+2		Physics	Master	Assistant teacher	Jar Najm Saleh	33
Teaching staff in the nursing department									8		Professional ethics 4=2*2 Life statistics 2*2=4	Electrical and Computer Engineering	Master	Assistant teacher	Samir Ahmed Mohamed	34

Assignments for Pharmacy Technology Technicians

	16		12					16	16	Physiology 2*4=8 Biochemistry 8=4*2		Microbiology	Bachelor	Technica l coach	Mona Mohamed Naguib	1
M. Laboratory	8		12					8	8	Organic Chemistry 2*4=8		Chemistry	Bachelor	Senior Technica l Trainers	Maysa Salah El-Din Sadiq	2
	16		12				2	14	16	Pharmaceutical Chemistry 2*4=8 Drugs 2*4=8		Chemistry	Bachelor	Chief Chemists	Hadeel Hatif number is Mahmoud's	3
M. Laboratory	8		12					8	8	Pharmacology 8=4*2		chemistry	Bachelor	R Chemists	Hala Adnan Ali	4
Department Secretary + Absences Committee + Evening shift to complete the morning shift's quota	8		12	8	Math 1*8=8		-8	8					diploma		Nadia Azad Khorshid	5
Technician assigned to administrative work	8		12					8	8	Pharmaceutical preparations 8=4*2		Horticulture and Landscape Architecture	Bachelor	Agricult ural Engineer	Rozan Ghaleb Hamid	6
Technician assigned to administrative work	8		12					8	8	Pharmaceutical :calculations 8=4*2		communication	Bachelor	Chief Engineer	Victory to Ali Muhammad	7
A technician assigned administrative work + evening shift to complete the morning shift's workload	8		12	8	Math 1*8=8		-8	8				electricity	diploma	Assistant Technica l Trainer	Ghadir Yashar Ahmed	8
A technician assigned administrative work + evening shift to complete the morning shift's workload	8		12	8	Math 1*8=8		-8	8					diploma		Amjad Khurshid Juma	9
Technician assigned to administrative work	8		12					8	8	Drugs 2*4=8		agriculture	Bachelor	Assistant Engineer	Rami Gamal Bayat	10
A technician assigned administrative work + evening shift to complete the morning shift's workload	8		12	8	Math 1*8=8		-8	8					Bachelor	Assistant Engineer	Hanan Abdul Latif Muhammad Ahmad	11

Technician assigned to administrative work	8		12					8	8	Math 1*8=8			Bachelor	Assistant Engineer	Fatima Mahmoud Mustafa	12
A technician assigned administrative work + evening shift to complete the morning shift's workload	8		12	8	Math 1*8=8		-8	8					Bachelor	Assistant Engineer	Bilana Salam Hamad	13
Technician assigned to administrative work	8		12					8	8	Pharmaceutical :calculations 8=4*2		electron	diploma	Assistant Engineer	Zaki Hotel witnessed	14
Technician assigned to administrative work	8		12					8	8	Pharmaceutical :calculations 8=4*2		Calculators	diploma	Senior Head of Technica l Trainers	Iman Tariq Abdul Halim	15
Technician assigned to administrative work	20		12	12	Math 1*4=4 Pharmacy Calculations 8=4*2			8	8	Math 1*8=8			Bachelor's		Yahya Ismail Ali	16
Technician assigned to administrative work	8		12					8	8	Math 1*8=8			diploma		Mohammed Hamid Rashid	17
Technician assigned to administrative work	8		12					8	8	Math 1*8=8			Bachelor's		Ahmed Salah Ali	18
Technician assigned to administrative work	8		12					8	8	Math 1*8=8			Bachelor's		Sherwan Ramadan Muhammad	19
Technician assigned to administrative work	8		12					8	8	Math 1*8=8			diploma		Ali Tariq Omar	20
Technician assigned to administrative work	8		12					8	8	Math 1*8=8			Bachelor	Assistant Engineer	Lausanne Nariman Naokhas	21
Technician assigned to administrative work	8		12					8	8	Math 1*8=8			Bachelor	Chief Program mer	Nasreen Salman Dawood	22
Technician assigned to administrative work	8		12					8	8	Pharmaceutical :calculations 8=4*2			Bachelor		Kazuya, a friendly team	23
A technician assigned administrative work + evening shift to complete the morning shift's workload	8		12	8	Math 1*8=8		-8	8					Bachelor		Najla Hamid Hadrar	24
A technician assigned administrative work + evening shift to complete the morning shift's workload	8		12	8	Math 1*8=8		-8	8				engineering	Bachelor		Basma Adnan Khalil	25
Technician assigned to administrative work	8		12					8	8	Math 1*8=8			Bachelor		Shilan Muhammad Taqi	26

Curriculum for the Department of Pharmacy Technology

1. Course Name
English language
2. Course Code
NTU 101
3. Term/Year
Second semester / First year
4. Date this description was prepared
2025/9/10
5. Available attendance formats
In- person / physical
6. Total study hours / Total number of units
Total number of study hours: 2 / Total number of units: 2
7. (Name of the course coordinator (if applicable) More than one name is mentioned
Name: Yildirim Fikret Abdurrazak Email: yildirim@ntu.edu.iq
8. Course Objectives
Developing academic reading and writing skills in English. Improving listening and speaking skills for effective professional and scientific communication. Enabling the student to understand and comprehend medical and scientific terms and texts.
9. Teaching and learning strategies
- Practical exercises and interactive language activities within the classroom. - Students giving oral presentation to break the barrier of fear . - Using audio-visual media and language labs to enhance listening.
10. Course Structure

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
Tests and discussion	theoretical	Unit 1 / Hello	Grammar/ Vocabulary/ Skills Work/Everyday English	2	1
Tests and reports	theoretical	Unit 2 / Your world	Grammar/ Vocabulary/ Skills Work/Everyday English	2	2
Tests and discussion	theoretical	Unit 3 / All about you	Grammar/ Vocabulary/ Skills Work/Everyday English	2	3
Tests and reports	theoretical	Unit 4 / Family and Friends	Grammar/ Vocabulary/ Skills Work/Everyday English	2	4
Tests and discussion	theoretical	Unit 5 / The way I live	Grammar/ Vocabulary/ Skills Work/Everyday English	2	5
Tests and reports	theoretical	Unit 6 / Every day	Grammar/ Vocabulary/ Skills Work/Everyday English	2	6
Tests and discussion	theoretical	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

11. Course Evaluation

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

12. Learning and teaching resources

Required textbooks (methodology, if applicable)	New Headway Academic Skills / Beginner to Intermediate Level - Oxford University Press.
Main references (sources)	English Grammar in Use - Raymond Murphy (Cambridge University Press).
Recommended supporting books and references (scientific journals (...reports	Medical English for Health Professionals, Oxford English for Careers: Medicine.
references , websites	BBC Learning English (bbc.co.uk/learningenglish), Cambridge Dictionary Online.

1. Course Name
Democracy and human rights
2. Course Code
NTU 100
3. Term/Year
First semester / First year
4. Date this description was prepared
2025/9/10
5. Available attendance formats
In- person / physical
6. Total study hours / Total number of units
Total number of study hours: 2 / Total number of units: 2
7. (Name of the course coordinator (if applicable) More than one name is mentioned)
Name: Jamal Fateh Ali The email: Jamal1978@ntu.edu.iq
8. Course Objectives
• Introducing the student to the concepts of democracy, basic human rights, and their historical development. • Promoting awareness of international and national laws and conventions that protect the rights of individuals. • Developing values of tolerance, active citizenship, and acceptance of others among students.
9. Teaching and learning strategies
• lectures and open discussions to express opinions. • Studying and analyzing real-life cases and issues related to human rights. • Group activities and student debates on the concepts of freedom and justice.
10. Course Structure

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
Tests and reports	theoretical	Human rights Its definition and objectives Human rights in ancient civilizations / Human rights in divine laws	Knowledge and Application	2	1
Tests and reports	theoretical	Human Rights in Contemporary and Modern History International Recognition of) Human Rights since World War I /and the League of Nations United Nations) / Regional :Recognition of Human Rights European Convention on Human Rights 1950, American Convention on Human Rights African Charter on Human ,1969 and Peoples' Rights 1981, Arab Charter on Human Rights 1994	Knowledge and Application	2	2
Tests and reports	theoretical	Non-governmental organizations and human rights (International ,Committee of the Red Cross Amnesty International, Human Rights Watch , National Human (Rights Organizations	Knowledge and Application	2	3
Tests and reports	theoretical	Human rights in Iraqi constitutions: between theory and reality . The relationship between human rights and public :freedoms -1 In the Universal .Declaration of Human Rights In regional charters and -2 .national constitutions	Knowledge and Application	2	4

Tests and reports	theoretical	Economic, social and cultural human rights; civil and political human Modern . human rights ,rights : Facts about development ,the right to a clean environment the right to solidarity, the right to religion	Knowledge and Application	2	5
Tests and reports	theoretical	Guarantees for respecting and protecting 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 for respecting and protecting human rights at the :international level The role of the United Nations -1 and its specialized agencies in providing guarantees The role of regional -2 organizations (the university) Arabic, European Union , African Union , Organization of .American States, ASEAN The role of international and -3 regional non-governmental organizations and public opinion in respecting and protecting human rights	Knowledge and Application	2	6
Tests and reports	theoretical	:The general theory of freedoms ,the origin of rights and freedoms the legislator's stance on public rights and freedoms, the use of ."the term "public freedoms	Knowledge and Application	2	7

Tests and reports	theoretical	Regulating public freedoms by Equality: The historical development of the concept of equality The modern development of the idea of equality Gender equality- Equality between individuals based on their beliefs and ethnicity before public authorities	Knowledge and Application	2	8
Tests and reports	theoretical	Freedom of education, freedom of the press, freedom of assembly Freedom of association, freedom of work Ownership rights	Knowledge and Application	2	9
Tests and reports	theoretical	Freedom of trade and industry Freedom, security, and a sense of reassurance Freedom to come and go Freedom of trade and industry Women's freedom	Knowledge and Application	2	10
Tests and reports	theoretical	Scientific and technological progress and public freedoms The future of public freedoms	Knowledge and Application	2	11
Tests and reports	theoretical	genocide	Knowledge and Application	2	12
Tests and reports	theoretical	Democracy, its characteristics and types	Knowledge and Application	2	13
Tests and reports	theoretical	Elections: Definition and Types	Knowledge and Application	2	14
Tests and reports	theoretical	Contemporary political systems	Knowledge and Application	2	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	حقوق الإنسان والديمقراطية (المستحدث من قبل وزارة التعليم العالي والبحث العلمي العراقية).
Main references (sources)	مدخل إلى حقوق الإنسان والديمقراطية - د. عثمان علي وإخوانه
Recommended supporting books and references (...scientific journals, reports)	الإعلان العالمي لحقوق الإنسان، الميثاق العربي لحقوق الإنسان، تقارير منظمة العفو الدولية والصليب الأحمر
references , websites	(OHCHR.org) موقع الأمم المتحدة لحقوق الإنسان، موقع مكتبة القانون الدولي

Course Name .1
computer
Course Code .2
NTU 102
Term/Year .3
First semester / First year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 2 / Total number of units: 2
(Name of the course coordinator (if applicable) More than one name is mentioned .7
the name: Hassan Muhammad Nouri hasan_mohammed@ntu.edu.iq Hassan Ismail Reda hasan@ntu.edu.iq
Course Objectives .8
• To provide the student with the basic skills for using computers, operating systems, and office software. ☐ Teaching students how to conduct safe academic research in scientific databases and the Internet. Understanding the basics of information security and dealing with modern electronic systems.
Teaching and learning strategies .9
• Direct practical application for each student within the computer labs. ☐ Individual and group projects for designing spreadsheets or presentations. • Guided self-learning through simulation platforms and educational programs.
Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
Tests and discussion	Practical + Theoretical	/ Introduction to computers Computer systems / Information / technology / Types of computers Input devices / Processing unit Central processing unit / Output units / Memory Main topics and their types / Data storage in memory / Factors affecting computer performance Definition of software and its types Software Systems: Operating / Systems / Programming Languages and Software Systems / Software . Applied	Knowledge and practical application	2	2&1
Tests and reports	Practical + Theoretical	Introduction to Windows Its / / Features / Starting the Computer / Shutting Down the Computer / Using the Mouse Windows Screen Components Taskbar : Icons : and : Their Types (Standard) (and the . general public)	Knowledge and practical application	2	3
Tests and discussion	Practical + Theoretical	/ Control Panel / Desktop Controls Screen Saver / Window Colors and Fonts / Display Settings / Color Adjustment Screen / Time and Date Adjustment / Volume / Switch Mouse Buttons / Double-Click Speed Control / Mouse Pointer / Change / Mouse Speed Control Install and Uninstall Programs	Knowledge and practical application	2	4
Tests and reports	Practical + Theoretical	/ Minimize and maximize window Close permanently / Temporarily close / Move window / Control window size / Application and program launch methods	Knowledge and practical application	2	5
Tests and discussion	Practical + Theoretical	Sort Start menu items Delete / Start menu items / Add a submenu to the Start menus Add a new button to / the Start menu	Knowledge and practical application	2	6
Tests and reports	Practical + Theoretical	/ Basic system information Disabling unwanted applications Windows / Explorer My Computer icon/ My Computer window sections	Knowledge and practical application	2	7

Tests and discussion	Practical + Theoretical	Recycle Bin (Delete , Restore, and / (Empty the BinMy Documents Icon	Knowledge and practical application	2	9&8
Tests and reports	Practical + Theoretical	/ Defining files and folders Specifying files and folders / File and folder properties / Creating files and folders / Renaming files and folders / Moving a file or / folder / Copying a file or folder / Searching for a file or folder Creating a shortcut icon for an application or file	Knowledge and practical application	2	11&10
Tests and discussion	Practical + Theoretical	/ Calculator / Notepad / Notebook Using the notepad to edit and create the file Screen Components / Creating Graphics / Setting Foreground Colors Background / Choose brush size / Select drawing tool / Save drawing / Set drawing as desktop) background / Exit Paint (Entertainment ProgramsMedia player	Knowledge and practical application	2	13&12
Tests and reports	Practical + Theoretical	/ Viruses / Reason for the name Definition / Ways of virus transmission / Symptoms of virus / infection / Methods of protection Types of viruses Computer crimes / Theft / Hackers	Knowledge and practical application	2	15&14

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	منهج أساسيات الحاسوب ونظم التشغيل (ICDL Module 1 & 2 / Windows & Office).
Main references (sources)	أساسيات الحاسوب وتطبيقاته المكتبية - أ.د. محمد خليل الهنداوي
Recommended supporting books and references (scientific journals, reports...)	مجلات تقنية المعلومات، التقارير الدورية لمنظمة أمن المعلومات والبرمجيات
references , websites	Microsoft Learn Support (support.microsoft.com), Coursera Computer Basics.

Course Name .1																	
Arabic																	
Course Code .2																	
NTU 103																	
Term/Year .3																	
Second semester / First year																	
Date this description was prepared .4																	
2025/9/10																	
Available attendance formats .5																	
In- person/ physical																	
Total study hours / Total number of units .6																	
Total number of study hours: 2 / Total number of units: 2																	
(Name of the course coordinator (if applicable) More than one name is mentioned .7																	
Name: Hanan Mohammed Nasser hananmohammedn@ntu.edu.iq Jamal Fateh Ali The email: Jamal1978@ntu.edu.iq																	
Course Objectives .8																	
☐ Enabling the student to draft official reports and correspondence in correct language, free from errors. Correcting speech and writing and avoiding common spelling and grammatical errors. Developing literary taste and understanding of Arabic rhetoric to enhance the quality of communication.																	
Teaching and learning strategies .9																	
• Linguistic and grammatical analysis of selected texts and group discussion of them. • Weekly writing assignments and tasks to develop writing skills. • Practical workshops for self-correction and mutual linguistic correction among students.																	
Course Structure .10																	
<table border="1"> <thead> <tr> <th>Evaluation Method</th> <th>Teaching method</th> <th>Unit/Topic Name</th> <th>Required learning outcomes</th> <th>Hours</th> <th>Week</th> </tr> </thead> <tbody> <tr> <td colspan="6"> </td> </tr> </tbody> </table>						Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week						
Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week												

oral test	The discussion method and the lecture method	Introduction to linguistic errors the closed and – open taa	Identifying the types of .1 .linguistic errors Differentiating .2 between the open taa and the closed taa	2	1
oral test	Discussion ,method lecture method	Rules for writing the long and short alif – solar and lunar letters	Differentiating .1 between writing the long ,alif and the short alif and the positions for .writing both alifs Differentiating .2 between solar and lunar letters	2	2
oral test	Discussion ,method lecture method	The letters ض and ظ	Distinguishing between ض and ظ	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	Getting to know marks and Punctuation writing them in their correct place	2	5
oral test	Discussion ,method lecture method	,Noun and verb and the difference between them	Identifying nouns and .1 verbs and stating the sign .of each Differentiating .2 between nouns and verbs Explanation of the .3 types of verbs Differentiating .4 between types of verbs	2	6
oral test	Discussion ,method lecture method	Objects	Identifying and differentiating between types of objects	2	7
oral test	Discussion ,method lecture method	number	Enabling the student to write numbers correctly	2	8

oral test	Discussion ,method lecture method	Applications for common grammatical errors	Getting to know Common linguistic errors and how to avoid them	2	9
oral test	Discussion ,method lecture method	Applications for common grammatical errors	Getting to know Common linguistic errors and how to avoid them	2	10
oral test	Discussion ,method lecture method	The letters Nun - and Tanween Meanings of Prepositions	Differentiating .1 between Noon and Tanween Understanding the .2 meanings of prepositions	2	11
oral test	Discussion ,method lecture method	Formal aspects of administrative discourse	Formal Getting to know aspects of administrative discourse	2	12
oral test	Discussion ,method lecture method	Administrative discourse language	Understanding the language of administrative discourse	2	13
oral test	Discussion ,method lecture method	Administrative discourse language	Understanding the language of administrative discourse	2	14
oral test	Discussion ,method lecture method	Examples of administrative correspondence	Getting to know Examples of administrative correspondence	2	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	كتاب اللغة العربية والسلامة اللغوية للجامعات المعاهد التقنية
Main references (sources)	جامع الدروس العربية - الشيخ مصطفى الغلاييني
Recommended supporting books and references (scientific journals, reports...)	التطبيق النحوي - د. عبده الراجحي، الأخطاء اللغوية الشائعة - د. إميل بديع يعقوب
references , websites	موقع مجمع اللغة العربية بالقاهرة، شبكة الفصحى لعلوم اللغة العربية

Course Name .1					
Sports					
Course Code .2					
NTU 104					
Term/Year .3					
Second semester / First year					
Date this description was prepared .4					
2025/9/10					
Available attendance formats .5					
In- person/ physical					
Total study hours / Total number of units .6					
Total number of study hours: 2 / Total number of units: 2					
(Name of the course coordinator (if applicable) More than one name is mentioned .7					
Name: Khudair Ahmed Hamid			The Email: khudhairahmedh@ntu.edu.iq		
Course Objectives .8					
• Enhancing physical fitness, general health and motor awareness of students. ☐ Relieving academic stress and releasing negative energy in positive ways. Developing team spirit, teamwork, discipline and sportsmanship.					
Teaching and learning strategies .9					
• Field physical training and direct movement exercises. ☐ Organizing group and individual sports matches and competitions. ☐ Sports and health guidance and counseling by supervisors.					
Course Structure .10					
Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week

Tests and reports	+ Practical Theoretical	,Sports: Definition Importance, and Types	Knowledge and practical application	2	1
Tests and reports	+ Practical Theoretical	The 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 skills of basketball	Knowledge and practical application	2	4
Tests and reports	+ Practical Theoretical	International rules of basketball	Knowledge and practical application	2	5
Tests and reports	+ Practical Theoretical	Basic skills of table tennis and its international rules	Knowledge and practical application	2	6
Tests and reports	+ Practical Theoretical	Basic skills of volleyball and its international rules	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 skills of handball	Knowledge and practical application	2	10
Tests and reports	+ Practical Theoretical	International rules of handball	Knowledge and practical application	2	11
Tests and reports	+ Practical Theoretical	Track and field games types, international rules of) (the game	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	Sports Competitions and Events Management	Knowledge and practical application	2	14
Tests and reports	+ Practical Theoretical	Sports laws and regulations	Knowledge and practical application	2	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	مبادئ التربية الرياضية والصحة العامة - د. قاسم : حسن حسين
Main references (sources)	.اللياقة البدنية والصحة - د. هزاع بن محمد الهزاع
Recommended supporting books and references (...scientific journals, reports)	،القوانين الدولية للألعاب الرياضية (كرة السلة، الطائرة القدم)، المجلة العصبية والرياضية
references , websites	الاتحاد الدولي ،(IOC) موقع اللجنة الأولمبية الدولية للرياضة الجامعية

Course Name .1					
Physiology					
Course Code .2					
MTIK 106					
Term/Year .3					
Second semester / First year					
Date this description was prepared .4					
2025/9/10					
Available attendance formats .5					
In- person/ physical					
Total study hours / Total number of units .6					
Total number of study hours: 4 / Total number of units: 4					
(Name of the course coordinator (if applicable) More than one name is mentioned .7					
Name: Yuksel Ezzeldin Sweid The email: yokcilezdin@ntu.edu.iq					
Course Objectives .8					
☐ Understanding the mechanisms of action of the various organs and systems of the human body in detail. • Linking normal vital functions to pathological changes that may occur in them. ☐ Understanding the mechanisms of homeostasis and how to maintain a stable body environment.					
Teaching and learning strategies .9					
☐ Theoretical lectures supported by visual aids and animated illustrations. • Practical laboratory experiments to measure vital signs (such as blood pressure and heart rate. ☐ Problem-Based Learning(Physical Problem-Based Learning).					
Course Structure .10					
Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week

a test	Lecture and laboratory	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 laboratory	Anemia deficiency of iron, Vit., B12, blood cells, types and functions.	B12 deficiency anemia ; types of blood cells and their functions	4	2
a test	Lecture and laboratory	Blood clotting. its factors and sites. Plasma proteins. its functions.	:Blood clotting its factors and sites; plasma proteins and .their functions	4	3
a test	Lecture and laboratory	Cardiovascular system, blood grouping. Erythroblastosis. Heart muscles, physiology of the heart.	Vascular system, blood types. Red blood cell .pluripotency Cardiac .muscle Cardiac physiology	4	4
a test	Lecture and laboratory	Blood circulation, blood to body tissues. Blood pressure, pulse	,Circulation blood to tissues, blood pressure, pulse	4	5
a test	Lecture and laboratory	Factors affecting heart rate. Respiratory system, structural and function.	Factors affecting heart rate. The respiratory :system structure and .function	4	6
a test	Lecture and laboratory	Lung volume, estimation. Spirometer. Hypoxia. Anoxia. its types	, Lung volume . Assessment .Spirometer Hypoxia . Its .types	4	7
a test	Lecture and laboratory	Effects of hypoxia respiratory centers. Central and peripheral nervous system	Effects of hypoxia on respiratory .centers	4	8

			Central and peripheral nervous .system		
a test	Lecture and laboratory	Nerve. its function & physiology. Autonomic nervous system.	The nerve: its function and . physiology The autonomic nervous .system	4	9
a test	Lecture and laboratory	Central nervous system. Cerebellum function and body balance.	The central nervous .system Cerebellum function and .body balance	4	10
a test	Lecture and laboratory	Physiology of digestion. steps of digestion. Accessory organs of digestive system. pancreas function .	Physiology of .digestion Steps of .digestion Accessory of the organs digestive .system Function of .the pancreas	4	11
a test	,a lecture	Digestive system. function of each part. Non digestive function of the pancreas, diabetes mellitus.	The digestive system. The function of .each part Non-digestive function of the ,pancreas .diabetes	4	12
a test	Lecture and laboratory	Urinary tract system function of each part. Urination.	The function of each part of the urinary .system .Urination	4	13
a test	Lecture and laboratory	Endocrine system, glands, function. Function of endocrine hormones	The endocrine ,system glands, and their functions. The function of	4	14

			endocrine .hormones		
a test	,Lecture Laboratory	Temperature regulation. Hypothermia. Frostbite Hyperthermia, heat stroke.	Temperature .regulation .Hypothermia , frostbite .sunstroke	4	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Textbook of Medical Physiology - Arthur C. Guyton & John E. Hall (Elsevier).
Main references (sources)	Ganong's Review of Medical Physiology - Kim E. Barrett et al. (Lange/McGraw-Hill).
Recommended supporting books and references (...scientific journals, reports)	Human Physiology: An Integrated Approach - Dee Unglaub Silverthorn, Journal of Physiology.
references , websites	PubMed (pubmed.ncbi.nlm.nih.gov), PhysiologyWeb.

Course Name .1
Anatomy
Course Code .2
MTIK 107
Term/Year .3
First semester / First year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Ozdan Akram Gharib The email: ozdanakram@ntu.edu.iq
Course Objectives .8
☐ Identifying the structural composition and geographical location of the organs and tissues of the human body. ☐ Distinguishing between different anatomical systems and their spatial relationship to each other. ☒ Acquiring the ability to describe the human body using scientific anatomical terminology.
Teaching and learning strategies .9
lessons using plastic models and fabric slides. ☒ Adoption of interactive3D Anatomy Software . ☐ Drawing and mind maps to link anatomical structures together.
Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Hours	Week
a test	,Lecture ,discussion video ,presentation puppet training, live application	:Anatomical positions Give a description of all human body .positions Superficial anatomy of the heart: Description of the heart's position according to the chest .wall and the number of ribs	4	1
a test	,Lecture ,discussion video presentation	Superficial anatomy of the lungs: Description of the position of the lungs according to the .chest wall and the number of ribs Abdominal surface anatomy: Drawing the regions of the abdominal surface according to .the horizontal and vertical lines	4	2
a test	,Lecture ,discussion video presentation	Stomach anatomy: Explaining the relationship of the stomach to other organs in .the abdomen Liver and spleen anatomy: Presentation of the liver and spleen regions according to .superficial abdominal anatomy	4	3
a test	,Lecture ,discussion video ,presentation model display	Intestinal anatomy: Explaining the relationship of the intestines to other organs .in the abdomen Dissection of the appendix: Identifying the .area of the appendix in the right iliac region	4	4
a test	,Lecture ,discussion video ,presentation model display	Gallbladder anatomy: Locate the gallbladder .area in the region under the right ribs .Locate the uterus in the suprapubic region	4	5
practical control	,Lecture ,discussion video presentation Display of models	:Skeletal anatomy - Description of the central skeleton: skull .spine and peripheral bones Shoulder bones: A presentation of the shoulder bones of the skeleton, which are the .scapula and clavicle	4	6

practical control	,Lecture ,discussion video ,presentation model display	Arm bones: Display of the arm bones . (humerus) Forearm bones: display of the ulna bone and . the radius bone	4	7
practical control	,Lecture ,discussion video ,presentation model display	Hand bones: Hand bones; wrist and supraspinatus bones The carpal and . phalanges ,Pelvic bones: The pelvic bones are: the ilium . ischium, and sacrum	4	8
practical control	,Lecture ,discussion video ,presentation model display	Femur bones: Skeletal display of the femur . with lower and upper limbs Leg bones: The bones are: the tibia and . fibula . Dislocation of the femur and foot	4	9
a test	,Lecture ,discussion video ,presentation model display	Foot bones: Description of the bones, which , are: (carpal bone, metatarsal bone . (phalanges Skull bones: Naming the number of bones on . all surfaces of the skull	4	10
a test	,Lecture ,discussion video ,presentation model display	The bones of the spine: an explanation of the . types and numbers of vertebrae Shoulder muscle: Displaying models of all . shoulder muscles	4	11
a test	,Lecture ,discussion video ,presentation model display	Anatomy of the chest wall: presentation of the types and numbers of ribs and . explanation of the sternum Chest and abdominal muscles: Identifying the names of the chest wall and abdominal . wall muscles	4	12
a test	,Lecture ,discussion video ,presentation model display	Back and gluteal muscles: Presentation of the . back and gluteal muscles Anatomy of the digestive system: A model . display of the organs of the digestive system	4	13
a test	,Lecture ,discussion video ,presentation	:Anatomy of the cardiac muscular system Displaying a model of the organs, namely the . heart and blood vessels	4	14

	model display	The respiratory system: an explanation of the .lungs, trachea, and bronchioles		
a test	,Lecture ,discussion video ,presentation model display	The urinary and reproductive system: display of the kidneys and urinary bladder with .emphasis on the uterus and prostate Central nervous system: Description of the brain - cerebellum - medulla oblongata and .spinal cord	4	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Atlas of Human Anatomy - Frank H. Netter (Elsevier).
Main references (sources)	Clinical Anatomy by Regions - Richard S. Snell (Lippincott Williams & Wilkins).
Recommended supporting books and references (scientific journals, reports...)	Gray's Anatomy for Students - Richard Drake et al., Journal of Anatomy.
references , websites	TeachMeAnatomy.info, Kenhub.com.

Course Name .1					
Laboratory and workshop safety					
Course Code .2					
MTIK 108					
Term/Year .3					
First semester / First year					
Date this description was prepared .4					
2025/9/10					
Available attendance formats .5					
In – person/ physical					
Total study hours / Total number of units .6					
Total number of study hours: 2 / Total number of units: 2					
(Name of the course coordinator (if applicable) More than one name is mentioned .7					
Name: Sadiq Badr Nouri sadeq@ntu.edu.iq Asia Qadir Ahmed The email: asai.kader95@gmail.com					
Course Objectives .8					
☐ To familiarize the student with the dangers of chemical and biological materials and devices, and how to classify them. • Equipping students with the skills to deal quickly and safely with accidents, fires and leaks. ☐ Instilling a culture of strict adherence to personal protective equipment(PPE) clothing and tools.					
Teaching and learning strategies .9					
• Practical training and field simulation of emergency and evacuation plans. workshops and presentations of videos of real accidents and ways to avoid them. • Periodic testing of safe laboratory practices before starting any experiment.					
Course Structure .10					
Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week

Feedback through asking questions	Discussion method	Essential equipment that must be available in the laboratory (laboratory layout)	The student should become familiar with .the equipment Essential requirements for the laboratory	2	1
Feedback through asking questions	Discussion method	Safety precautions when handling laboratory equipment and chemicals	The student understands the safety precautions when handling laboratory equipment/ . chemicals	2	2
Feedback through asking questions	Discussion method	Safety precautions when completing laboratory work and storing and preserving materials	Teaching students the work procedures and safety precautions upon completion of laboratory ,work and the proper storage and preservation of materials.	2	3
Feedback through asking questions	Discussion method	Fires and their types. And methods of extinguishing .them	The student should be able to distinguish , between fires their types and methods , of extinguishing .them	2	5&4

Feedback through asking questions	Discussion method	Personal protective equipment	Students should become familiar with personal protective .equipment	2	6
Feedback through asking questions	Discussion method	Chemical hazards and how to deal with them	Students should learn about the types of chemical hazards and how to deal with them .	2	7
Feedback through asking questions	Discussion method	Radiation hazards	Students should learn about the types of radiation .hazards	2	8
Feedback through asking questions	Discussion method	biological hazards	Students should learn about the types of biological .hazards	2	9
Feedback through asking questions	Discussion method	Disposal of laboratory ;(medical) waste use of warning signs in the laboratory	Students should learn about the different types .of waste Medical Laboratory	2	11&10
Feedback through asking questions	Discussion method	First aid in laboratories	Students should learn about different types of	2	13&12

			accidents and .first aid		
Feedback through asking questions	Discussion method	Other environmental factors and their impact on safety , and health (light noise, heat and (humidity	The student should be able to identify the physical factors that are harmful to the work .environment	2	14
Feedback through asking questions	Discussion method	Safety in field studies	Students should learn about the different types .of field studies	2	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	دليل السلامة والصحة المهنية في المختبرات الطبية والتعليمية - وزارة الصحة/التعليم العالي
Main references (sources)	Laboratory Biosafety Manual - World Health Organization (WHO).
Recommended supporting books and references (...scientific journals, reports)	Biosafety in Microbiological and Biomedical Laboratories (CDC/NIH), OSHA Safety Guidelines.
references , websites	WHO Laboratory Safety (who.int), CDC Biosafety Resources

Course Name .1					
Medical terminology					
Course Code .2					
MTIK 109					
Term/Year .3					
Second semester / First year					
Date this description was prepared .4					
2025/9/10					
Available attendance formats .5					
In- person/ physical					
Total study hours / Total number of units .6					
Total number of study hours: 2 / Total number of units: 2					
(Name of the course coordinator (if applicable) More than one name is mentioned .7					
Name: Maad Abdullah Mansour maadabdullahm@ntu.edu.iq Asia Qader Ahmed The email asai.kader95@gmail.com					
Course Objectives .8					
☐ Deconstructing and understanding medical words through the study of prefixes, suffixes, and roots. ☐ Enabling the student to read and interpret medical reports and prescriptions with high accuracy. ☐ Facilitating effective and unified professional communication with the medical staff in all its specialties.					
Teaching and learning strategies .9					
• Use exercises and flashcardsto facilitate memorization. ☐ Analyzing real medical texts and patient reports and extracting terminology from them. • Interactive educational language games and quick surprise quizzes.					
Course Structure .10					
Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week

oral test	,Lecture discussion of representation by drawing on ,the board PowerPoint	The first :lecture Introduction" to Medical "Terminology	Introducing the students to importance and nature of the medical terminology .course	2	1
oral test	,Lecture ,discussion video ,presentation and PowerPoint presentation	" :Lecture Two The Basic Structure of "Words	Understanding the structure of medical terminology and its basic components	2	2
oral test	,Lecture ,discussion PowerPoint ,presentation paired representation	:Three Lecture "The Root"	the Identifying root of the medical term	2	3
Oral and practical test	,Lecture ,discussion video ,presentation and image presentation	" :Four Lecture "The Beginning	the Identifying syllables added to the beginnings of a medical term	2	4
Practical and oral test	,Lecture ,discussion video and image presentation	The fifth lecture, "The "Next One	the Identifying syllables added to the ends of medical terms	2	5
practical control	,Lecture ,discussion video lecture presentation	:Lecture Six Rules of" Moving "Connections	Understanding how to link medical terms	2	6
Practical and oral test	,Lecture ,discussion slideshow	Lecture Seventh" Forms of "connection	the Identifying types of linking specific to medical terminology	2	7
practical control	,Lecture ,discussion and video photo presentations	:Lecture Eight Medical " Terminology "and Pathology	Understanding key medical terms and pathology concepts	2	8
practical control	,Lecture ,discussion	" :Lecture Nine Cardiac and	the most Learn important	2	9

	video and image presentation	Circulatory System "Terminology Nervous" System "Terminology	medical terms related to the cardiovascular and nervous systems, their components, and the most common .diseases		
practical control	,Lecture ,discussion video and image presentation	Lecture Ten Terminology Digestive system Terminology urinary system	the most Learn important medical terms related to the digestive and ,urinary systems ,their components and the most .common diseases	2	10
practical control	,Lecture ,discussion video and image presentation	:Lecture Eleven Terminology " of Blood and the Lymphatic "System	the most Learn important medical terms related to blood and the lymphatic system, its components, and the most common .diseases	2	11
practical control	,Lecture ,discussion video and image presentation	:Lecture Twelve Respiratory " System "Terminology	the most Learn important medical terms related to the respiratory system, its components, and the most common .diseases	2	12
practical control	,Lecture ,discussion video and image presentation	The thirteenth : lecture Teeth, Face" "and Jaws	Understanding 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	Understanding key medical terminology In terms of	2	14

			situations and trends		
Practical and oral test	,Lecture ,discussion video and image presentation	:Lecture Fifteen Terminology" of the Musculoskeletal "System	Understanding the most important medical terms related to the musculoskeletal system, its components, and the most common .diseases	2	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Medical Terminology for Health Professions - Ann Ehrlich & Carol L. Schroeder.
Main references (sources)	The Language of Medicine - Davi-Ellen Chabner (Elsevier).
Recommended supporting books and references (...scientific journals, reports)	Stedman's Medical Dictionary for the Health Professions and Nursing.
references , websites	MedlinePlus Medical Terminology (medlineplus.gov), GlobalRPH Medical Terminology.

Course Name .1					
Principles of Pharmacy					
Course Code .2					
PHT112					
Term/Year .3					
First semester / First year					
Date this description was prepared .4					
2025/9/10					
Available attendance formats .5					
In- person/ physical					
Total study hours / Total number of units .6					
Total number of study hours: 4 / Total number of units: 4					
(Name of the course coordinator (if applicable) More than one name is mentioned .7					
Name: Omid Mohsen Hassan The email Phomeedmuhsin@uokirkuk.edu.iq					
Course Objectives .8					
• To learn about the history of the pharmacy profession, its development, and the diverse fields of work for pharmacists. □ Understanding the different pharmaceutical forms (tablets, syrup, injections) and methods of administering them to the body. • Familiarity with the laws, regulations, ethics and responsibilities of practicing the pharmacy profession.					
Teaching and learning strategies .9					
□ Introductory lectures and field visits to factories and pharmacies. □ Studying and discussing real ethical and professional dilemmas facing pharmacists. □ Presentations and mini-research conducted by students on modern pharmaceutical forms.					
Course Structure .10					
Evaluation	Teaching method	Unit/Topic Name	Required outputs	Hours	Week

a test	,Lecture ,discussion presentation	Science of pharmacy, definitions ----- Practical: General term in practical pharmaceuticals	Introducing students to the basic concepts of pharmacology ----- practical pharmacology terminology	4	1
a test	,Lecture ,discussion presentation	Weight and measures ----- Practical: Roman numerals	Weights and Measurements ----- Practical aspect of Roman numerals discussion	4	2
practical control	,Lecture ,discussion presentation	Pharmaceutical dosage forms, aromatic water ----- Practical: Seminar	Pharmaceutical formulations and aromatic water ----- practical aspect Introductory dialogue	4	3
a test	,Lecture ,discussion presentation	Medical prescription ----- Practical: Routes of Administration	Prescription ----- practical aspect Methods of administering the drug	4	4
a test	,Lecture ,discussion presentation	Pharmaceutical technique ----- Practical: Practical: Discussion	Pharmaceutical technology ----- practical aspect discussion	4	5
practical control	,Lecture ,discussion presentation	Solubility, solute and solvent ----- Practical: Seminar	,Solubility solvent and solute ----- practical aspect	4	6

			Introductory dialogue		
a test	,Lecture ,discussion presentation	Drug formulation ----- Practical: Cosolvent	pharmaceutical formulations ----- practical aspect Solubility aids	4	7
practical control	,Lecture ,discussion presentation	Drug stability ----- Practical: Discussion	Drug stability ----- practical aspect discussion	4	8
practical control	,Lecture ,discussion presentation	Drug preservation ----- Practical: Seminar	Pharmaceutical therapeutic preserves ----- practical aspect Introductory dialogue	4	9
a test	,Lecture ,discussion presentation	Quantities and measurements, Patient instruction. ----- Practical abbreviations	Qualitative and quantitative measures and patient counseling ----- Practical aspects (abbreviations)	4	10
a test	,Lecture ,discussion presentation	Master formula, scaled formula ----- Practical: Discussion	Required preparatory formulas aspect Practical discussion	4	11
practical control	,Lecture ,discussion an offer My presentation	Solubility and concentration. ----- Practical: Seminar	Solubility and concentration Introductory : topics	4	12

practical control	,Lecture ,discussion presentation	solutions ----- Practical Calculations	solutions ----- practical aspect the accounts	4	13
a test	,Lecture ,discussion presentation	Vehicles ----- Practical Practical: Discussion	Active ingredient carriers ----- practical aspect discussion	4	14
practical control	,Lecture ,discussion presentation	Suspensions ----- Practical: Seminar	The Hangings ----- practical aspect Introductory dialogue	4	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Remington: The Science and Practice of Pharmacy - Academic Press.
Main references (sources)	Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems - Loyd V. Allen.
Recommended supporting books and references (...scientific journals, reports)	Introduction to Pharmaceutical Calculations - Judith A. Rees, Journal of Pharmaceutical Sciences.
references , websites	American Pharmacists Association (pharmacist.com), ScienceDirect Pharmaceutics.

1. Course Name
Fundamentals of Organic Chemistry
2. Course Code
PHT113
3. Term/Year
First semester / First year
4. Date this description was prepared
2025/9/10
5. Available attendance formats
In- person/ physical
6. Total study hours / Total number of units
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned7. 7.
Name :Alwan Qader Ahmed The email: alwanqahmed@gmail.com
8. Course Objectives
☐ Understanding the nomenclature rules(IUPAC) and the structural composition of basic organic compounds. ☐ Identifying the different functional groups and their physical and chemical properties. ☐ Understanding the basic concepts of simple organic bonds and interactions.
9. Teaching and learning strategies
☐ Theoretical explanation based on three-dimensional molecular models(Molecular Models). ☐ Intensive exercises and solving problems related to chemical nomenclature and drawing structures. ☐ Basic laboratory experiments to detect different functional groups.
10. Course Structure

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
a test	Lecture and laboratory	Introduction to ,organic chemistry organic compounds found in nature, and pollution by organic .compounds	Introduction to organic chemistry, organic compounds present in nature, pollution with organic compounds		1
a test	Lecture and laboratory	Methods of hybridizing hydrocarbon compounds	Hybridization methane, Ethylene, Acetylene ,	4	2
a test	Lecture and laboratory	,Classification ,reactions nomenclature, and properties of hydrocarbons	Hydrocarbons Classification alkane, alkenes, benzene example, reaction, nomenclature, properties	4	3
a test	Lecture and laboratory	Examples of alkane compounds, their ,nomenclature reactions, and properties	Alkynes, Example, Nomenclature, Properties, Reaction	4	4
a test	Lecture and laboratory	Aromatic compounds and their ,nomenclature ,polycyclic compounds and electrophile substitution of cyclic .compounds	Aromatic compound, Names, Polycyclic aromatic compound, Electrophilic aromatic substitutions	4	5
a test	Lecture and laboratory	Preparation of ,phenolic compounds their reactions and properties	Phenols, Synthesis, Reaction, Properties	4	6
a test	Lecture and laboratory	:Alcohols ,Classification Reactions, and Properties	Alcohols, Classification and properties, Reactions	4	7
a test	Lecture and laboratory	: Aldehyde compounds ,classification properties, and reactions	Aldehyde's, Classification and properties, Reactions	4	8
a test	Lecture and laboratory	, Ketone compounds their properties and reactions	Ketones, Classification and properties, Reactions	4	9

a test	Lecture and laboratory	Carboxylic acid :compounds ,classification reactions, and preparations	Carboxylic acid, Classification and properties, Reactions	4	10
a test	Lecture and laboratory	, Ester compounds their reactions, and properties	Ester, Reaction and Properties	4	11
a test	,a lecture	:Ether compounds ,nomenclature ,preparation, reactions and properties	Ether, Nomenclature and properties	4	12
a test	Lecture and laboratory	Nuclear magnetic resonance spectrum and infrared spectrum	IR and UV spectroscopy .	4	13
a test	Lecture and laboratory		Heterocyclic	4	14
a test	,Lecture Laboratory	Stereochemistry	Stereochemistry .	4	15

11. Course Evaluation

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

12. Learning and teaching resources

Required textbooks (methodology, if applicable)	Organic Chemistry - T.W. Graham Solomons & Craig B. Fryhle (Wiley).
Main references (sources)	Organic Chemistry - John McMurry (Cengage Learning).
Recommended supporting books and references (...scientific journals, reports)	Organic Chemistry for Pharmacy Students, Journal of Organic Chemistry.
references , websites	ChemGuide.co.uk, Royal Society of Chemistry (rsc.org).

Course Name .1
Analytical Chemistry
Course Code .2
PHT114
Term/Year .3
First semester / First year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
:tends A Name: Al- Wahain Qadir Ahmed The letter alwanqahmed@gmail.com
Course Objectives .8
☐ Understanding the principles of chemical analysis of both types: descriptive (qualitative) and quantitative. • Mastering titration methods and calculations related to the concentration and preparation of solutions. ☐ Understanding how to use basic analytical instruments and accurately interpret their results.
Teaching and learning strategies .9
☐ Intensive practical experiments in the laboratory (such as weighing and calibration operations. ☐ Solving various mathematical problems and applied chemical calculations. ☐ Writing periodic laboratory reports and analyzing error rates in practical results.

Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
, Daily exam ,term exam scientific reports	The -1 method of delivering lectures Student -2 groups Workshops -3 Reports -4 and Studies	Introduction of analytical chemistry	Introduction to Analytical Chemistry	4	1
, Daily exam ,term exam scientific reports	The -1 method of delivering lectures Student -2 groups Workshops -3 Reports -4 and Studies	Review of elementary concept important to analytical chemistry: Strong and weak electrolytes;important weight and concentration units.	The student's knowledge of the principles of analytical chemistry: Strong and weak electrolytes and weights and its units of measurement	4	2
, Daily exam ,term exam scientific reports	The -1 method of delivering lectures Student -2 groups Workshops -3 Reports -4 and Studies	The evaluation of analytical data: Definition of terms.	Understanding the estimation of analytical data and knowing some important terms in analytical .chemistry	4	3
, Daily exam ,term exam scientific reports	The -1 method of delivering lectures Student -2 groups Workshops -3	An introduction to gravimetric analysis: precipitation methods; gravimetric factor	Knowledge of quantitative gravimetric analysis methods sedimentation , methods , and	4	4

	Reports -4 and Studies		gravimetric coefficient		
, Daily exam ,term exam scientific reports	The -1 method of delivering lectures Student -2 groups Workshops -3 Reports -4 and Studies	The scope of applications of gravimetric analysis: Inorganic precipitating agents; organic precipitating agents.	Knowledge of quantitative analysis applications and types of inorganic and organic precipitating agents	4	5
, Daily exam ,term exam scientific reports	The -1 method of delivering lectures Student -2 groups Workshops -3 Reports -4 and Studies	An introduction to volumetric methods of analysis:	Knowledge of volumetric analysis methods	4	6
		Volumetric calculations; acid- base equilibria and pH calculations.	Understanding volumetric , calculations chemical equilibrium between acid and base , and how to .pH calculate	4	7
, Daily exam ,term exam scientific reports	The -1 method of delivering lectures Student -2 groups	Buffer solutions:	Study of solutions with	4	8

	Workshops -3 Reports -4 and Studies				
		Theory of neutralization titrations of simple system.	Theoretical study of parity corrections for simple systems	4	9
, Daily exam ,term exam scientific reports	The -1 method of delivering lectures Student -2 groups Workshops -3 Reports -4 and Studies	Theory of neutralization titrations of complex system	A study of the equivalence analysis of complex systems	4	10
		Precipitation titrations.	Sedimentation corrections	4	11
, Daily exam ,term exam scientific reports	The -1 method of delivering lectures Student -2 groups Workshops -3 Reports -4 and Studies	Calculation of pH in complex system; Volumetric methods based on complex system.	Methods for calculating the pH of systems :Complex Volumetric methods used in complex systems	4	12
, Daily exam ,term exam scientific reports	The -1 method of delivering lectures Student -2 groups Workshops -3 Reports -4 and Studies	Equilibria in oxidation-reduction system; theory of oxidation-reduction titrations.	: equilibrium Redox corrections	4	13
, Daily exam ,term exam	The -1 method of	Spectrophotometric analysis: An introduction to	Introduction to Spectroscopic	4	14

scientific reports	delivering lectures Student -2 groups Workshops -3 Reports -4 and Studies	optical methods of analysis	Chemical Analysis Methods		
, Daily exam ,term exam scientific reports	The -1 method of delivering lectures Student -2 groups Workshops -3 Reports -4 and Studies	Beer- limber'slaw - calibration curve.	Peer-Lambert's Law Curves	4	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Fundamentals of Analytical Chemistry - Douglas A. Skoog, Donald M. West, F. James Holler (Cengage).
Main references (sources)	Analytical Chemistry - Gary D. Christian (Wiley).
Recommended supporting books and references (scientific journals, reports...)	Pharmaceutical Analysis: A Textbook for Pharmacy Students and Pharmaceutical Chemists - David G. Watson.
references , websites	American Chemical Society Analytical Division, Analytical Chemistry Journal (acs.org).

Course Name .1
Organic Chemistry
Course Code .2
PHT116
Term/Year .3
Second semester / First year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
:tends A Name: Shenai Rajab Hassan The letter Shanayhassan8@ntu.edu.iq
Course Objectives .8
☐ Studying the mechanisms of complex organic reactions(Reaction Mechanisms) in detail. ☐ Identifying cyclic and heterocyclic compounds and their applications in pharmaceutical manufacturing. ☐ Understanding the methods of synthesizing, separating, and purifying various organic compounds in the laboratory.
Teaching and learning strategies .9
☐ Draw and trace the mechanisms of chemical reactions on the board and discuss them step by step. ☐ Advanced laboratory experiments (such as organic synthesis, distillation, and (recrystallization. ☒ Using computer modeling software to understand the stability of organic molecules and their interactions.

Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
a test	Lecture and laboratory	Introduction to organic chemistry, organic compounds present in nature, pollution with organic compounds	Introduction to Organic Chemistry	4	1
a test	Lecture and laboratory	Hybridization methane, Ethylene, Acetylene ,	Hybridization of aliphatic compounds	4	2
a test	Lecture and laboratory	Hydrocarbons Classification alkane, alkenes, benzene example, reaction, nomenclature, properties	Classification of : hydrocarbons , alkanes Alkenes	4	3
a test	Lecture and laboratory	Alkynes, Example, Nomenclature, Properties, Reaction	Examples of alkenes and their reactions	4	4
a test	Lecture and laboratory	Aromatic compound, Names, Polycyclic aromatic compound, Electrophilic aromatic substitutions	Aromatic compounds and their reactions	4	5
a test	Lecture and laboratory	Phenols, Synthesis, Reaction, Properties	, Phenolic compounds their reactions and properties	4	6
a test	Lecture and laboratory	Alcohols, Classification and properties, Reactions	Alcoholic compounds and their properties	4	7
a test	Lecture and laboratory	Aldehyde's, Classification and properties, Reactions	Aldehyde compounds ,classification : properties, and reactions	4	8
a test	Lecture and laboratory	Ketones, Classification and properties, Reactions	, Ketone compounds their properties and reactions	4	9
a test	Lecture and laboratory	Carboxylic acid, Classification and properties, Reactions	Carboxylic acid :compounds ,classification	4	10

			reactions, and preparations		
a test	Lecture and laboratory	Ester, Reaction and Properties	, Ester compounds their reactions, and properties	4	11
a test	,a lecture	Ether, Nomenclature and properties	:Ether compounds ,nomenclature ,preparation reactions, and properties	4	12
a test	Lecture and laboratory	IR and UV spectroscopy .	Nuclear magnetic resonance spectrum and infrared spectrum	4	13
a test	Lecture and laboratory	Heterocyclic	heterocyclic compounds	4	14
a test	,Lecture Laboratory	Stereochemistry .	Stereochemistry	4	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Organic Chemistry - Francis A. Carey & Robert M. Giuliano (McGraw-Hill).
Main references (sources)	Organic Chemistry with Biological Applications - John McMurry.
Recommended supporting books and references (...scientific journals, reports)	Stereochemistry of Organic Compounds - Ernest L. Eliel, Advanced Organic Chemistry Journals.
references , websites	Khan Academy Organic Chemistry, Master Organic Chemistry (masterorganicchemistry.com).

Course Name .1
Biochemistry
Course Code .2
PHT117
Term/Year .3
Second semester / First year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Noha Hamza Khader The email: nuha70hamza@ntu.edu.iq
Course Objectives .8
☐ ,Understanding the chemical structure and function of biomolecules (carbohydrates (proteins, lipids, nucleic acids. ☐ Understanding the vital metabolic pathwaysand how energy is produced in the body. ☐ Linking the disruption in biochemical pathways to various diseases (such as diabetes and (leukemia.
Teaching and learning strategies .9
☐ Lectures supported by detailedmetabolic charts and illustrations. • Practical laboratories for detecting sugars, proteins, and measuring enzyme efficiency. ☐ Studying and discussing clinical cases(Case Studies) related to metabolic diseases.
Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
a test	Lecture and laboratory	Introduction to biochemistry, its role in medicine, and methods of using the equipment	Introduction to Biochemistry and its role in medicine and using the device	4	1
a test	Lecture and laboratory	Understanding the body's pH level, types of fluids in the body and diagnostic equipment	pH, water, buffers and devices used for diagnosis	4	2
a test	Lecture and laboratory	Continuing from the previous lecture: A study of acid-base balance in body diseases and disorders and the types of buffer systems in the body	Continuation of the lecture acid base balance and its disorders.	4	3
a test	Lecture and laboratory	Introduction to Carbohydrates and Metabolism	Carbohydrates structure and metabolism	4	4
a test	Lecture and laboratory	Classification, structure, functions and mechanisms of carbohydrate metabolism	Classification of carbohydrate, Structure, Function, Metabolism of carbohydrate	4	5
a test	Lecture and laboratory	Introduction to fats their composition and classifications	Introduction of Lipids, classified and structure	4	6
a test	Lecture and laboratory	Functions of fats and fat metabolism	Function, Metabolism of Lipids.	4	7
a test	Lecture and laboratory	Studying the structure and functions of proteins in the body	Structure and function of proteins	4	8
a test	Lecture and laboratory	Explanation of the structure, functions and breakdown of amino acids	Structure, function and metabolism of amino acids	4	9
a test	Lecture and laboratory	DNA and protein synthesis	nucleic acid and protein synthesis	4	10

a test	Lecture and laboratory	DNA and RNA synthesis and protein synthesis	DNA structure and replication, RNA structure and replication, Translation and protein synthesis	4	11
a test	Lecture and laboratory	Enzymes and enzyme kinetics	Enzymes and enzyme kinetics	4	12
a test	Lecture and laboratory	The mechanism of ,action, structure functions, and regulation of enzymes	Mechanism of enzyme action, structure and functions , Enzyme kinetics and regulation	4	13
a test	Lecture and laboratory	,Hormones: Types Characteristics, and Functions	Hormones and Types, properties, function	4	14
a test	,Lecture Laboratory	,Vitamins: Types Properties, and Functions	vitamins Types, properties, function	4	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Harper's Illustrated Biochemistry - Victor W. Rodwell et al. (Lange/McGraw-Hill).
Main references (sources)	Lehninger Principles of Biochemistry - David L. Nelson & Michael M. Cox (W.H. Freeman).
Recommended supporting books and references (...scientific journals, reports)	Lippincott Illustrated Reviews: Biochemistry - Denise R. Ferrier, Trends in Biochemical Sciences Journal.
references , websites	Biochemical Society (biochemistry.org), NCBI Bookshelf Biochemistry.

Course Name .1
First aid
Course Code .2
PHT118
Term/Year .3
Second semester / First year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 2 / Total number of units: 2
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Cole Jemin Medhat The email: goljameen_midhat@ntu.edu.iq
Course Objectives .8
• Equipping the student with the skills for rapid and safe intervention in emergency situations Such as cardiopulmonary resuscitation(CPR) bleeding, burns , ☐ Distinguishing between critical cases that require immediate transfer and cases that can be treated on-site. Developing self-confidence, calmness, and the ability to make sound decisions under the pressure of incidents.
Teaching and learning strategies .9
☐ Practical training and direct simulation using medical educational mannequins (Mankins). ☐ Representing live scenarios and simulated incidents to assess the student's response speed. • Watching and analyzing educational and guidance videos approved by the World Health Organization.
Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	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	Theoretical lecture	Spinal fractures	Type, aid and treatment	2	11
a test	Theoretical lecture	Accident ambulance	Type, aid and treatment	2	12
a test	Theoretical lecture	Insect bites	Type, aid and treatment	2	13
a test	Theoretical lecture	Insect bites aid	Type, aid and treatment	2	14
a test	Theoretical lecture	Review	-	2	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	دليل الإسعافات الأولية الشامل - الهلال الأحمر / الصليب الأحمر : الدولي.
Main references (sources)	First Aid Manual - St John Ambulance, St Andrew's First Aid, British Red Cross (DK Publishing).
Recommended supporting books and references (scientific journals, reports...)	Advanced First Aid, CPR, and AED - American Academy of Orthopaedic Surgeons (AAOS).
references , websites	American Heart Association First Aid Guidelines (heart.org), Red Cross First Aid Resources.

Course Name .1
Microbiology
Course Code .2
PHT120
Term/Year .3
First semester / First year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Yuksel Ezzeldin Sweid The email: yokcilezdin@ntu.edu.iq
Course Objectives .8
☐ ,Identifying the classification, structure, and characteristics of microorganisms (bacteria (viruses, fungi, parasites. ☐ Understanding the mechanisms of diseasepathogenesis and the methods of transmission of infection in the community and hospitals. ☐ Studying methods of inhibition, sterilization, the mechanism of action of antibiotics and microbial resistance to them.
Teaching and learning strategies .9
☐ Applied laboratory work (culture of bacteria on environmental media, Gram staining, and (microscopic examination. ☐ Studying clinical cases of common infectious and communicable diseases. • Discussion panels and research on the phenomenon of antibiotic resistance and how to reduce it.

Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
Tests and assignments	blended learning	History of microbiology Classification of microorganism, bacterial shape .	History of Microbiology Classification of microorganisms and bacterial .form	4	1
Tests and assignments	blended learning	Anatomy of the bacterial cell, cell wall, flagella, plasma membrane, ribosomes, endospores	Anatomy of a bacterial cell: cell ,wall, flagellum plasma ,membrane , ribosomes endospores	4	2
Tests and assignments	blended learning	Bacterial physiology and metabolism growth, division, nutrition and other requirements like oxygen	Bacterial ,physiology ,metabolism ,growth, division nutrition, and other requirements such as oxygen	4	3
Tests and assignments	blended learning	Sterilization and disinfection. Types of sterilization, preservative (The control of microbial growth), Immunization	Sterilization and .disinfection Types of ,sterilization preservatives antimicrobial) agents), and .immunization	4	4
Tests and assignments	blended learning	Pathogenicity of bacteria, stages of infection	Bacterial ,pathogenesis stages of infection	4	5

	Tests and assignments	blended learning	development of the disease, Virulence factor of bacteria Antibiotics, Mechanisms of antimicrobial action, Combination of antibiotic therapy, synergism, antagonism, indifferences .	Disease ,progression bacterial ,virulence factor ,antibiotics mechanisms of action of ,antimicrobials combination of Antibiotic ,treatment synergy, and .hostility	4	6	
	Tests and assignments	blended learning	Bacterial groups and their diseases. Gram-positive cocci Staphylococcus aureus S. epidermidis, Streptococcus pyogenes, Strept . Pneumonia .	Bacterial groups and their diseases. Gram- ,positive cocci Staphylococcus aureus(S. aureus Streptococcus ,(,pyogenes Streptococcus .pneumoniae	4	7	
	Tests and assignments	blended learning	Gram-positive bacilli Corynebacterium diphtheria. Mycobacterium tuberculosis, Clostridium perfringens.Clostridium tetani	Gram-positive ,bacilli Corynebacterium . diphtheriae , Tuberculosis Clostridium , perfringens Clostridium tetani	4	8	
	Tests and assignments	blended learning	Gram negative bacilli, E. coli. Salmonella spp. Shigella spp. Vibrio cholera.	Gram-negative ,bacilli ,Escherichia coli ,.Salmonella spp ,.Shigella spp Vibrio cholerae	4	9	
	Tests and assignments	blended learning	Viruses, morphology, replication, Eukaryotic	Viruses, their , morphology	4	10	

			cell, Some humane pathogenic viruses, Hepatitis B virus, Rhinoviruses, HIV, Rabies, measles..	,reproduction ,eukaryotic cells some viruses that cause human diseases, hepatitis ,B virus ,rhinoviruses ,HIV, rabies .measles			
	Tests and assignments	blended learning	Eukaryotic cell, cell components, cell division in Eukaryotes, mitosis, meiosis .	,Eukaryotic cell ,cell components cell division in , eukaryotes mitosis, meiosis	4	11	
	Tests and assignments	blended learning	Trichomonas vaginalis), Blood parasite (Trypanosoma gambiense, Plasmodium) Tissue parasite (cutaneous leishmaniasis, Toxoplasma)	Trichoma) vaginalis), blood parasite Trypanosomiasis) gambiae , Plasmodium), tissue parasite (cutaneous leishmaniasis , (Toxoplasmosis	4	12	
	Tests and assignments	blended learning	General characteristic, medical classification of fungi, T. rubrum. Aspergillus C. albicans, fungus drug contamination	General ,characteristics medical classification of ,fungiT. rubrum, Aspergillus, C. albicans drug , contamination with fungi	4	13	
	Tests and assignments	blended learning	Parasitic Helminths (worms), general characteristics, blood tapeworms (Schistosoma mansoni), Intestinal tapeworms (Taenia	Parasitic worms (worms), general ,characteristics blood tapeworms Schistosoma) ,(mansoni intestinal	4	14	

			Spp), Intestinal roundworms (Ascaris lumbricoides, Enterobius vermicularis (	) tapeworms Taenia spp ,(. intestinal worms)Ascaris lumbricoides , Enterobius vermicularis (			
	Tests and assignments	blended learning	Seminar	seminar	4	15	

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Jawetz, Melnick, & Adelberg's Medical Microbiology - Geo. F. Brooks et al. (McGraw-Hill).
Main references (sources)	Microbiology: An Introduction - Gerard J. Tortora, Berdell R. Funke, Christine L. Case (Pearson).
Recommended supporting books and references (...scientific journals, reports)	Pharmaceutical Microbiology - W.B. Hugo & A.D. Russell (Blackwell Science).
references , websites	American Society for Microbiology (asm.org), CDC Microbiology Resources.

Course Name .1
Computer 2
Course Code .2
NTU 201
Term/Year .3
Second semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 2 / Total number of units: 2
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Hassan Mohamed Nour El-Din hasan_mohammed@ntu.edu.iq Hassan Ismail Reda The email: hasan@ntu.edu.iq
Course Objectives .8
☐ Enabling the student to use advanced software and database management for use in medical and pharmaceutical work. Understanding the mechanisms for using cloud computing systems and artificial intelligence applications in archiving and scientific research. • Training the student in advanced digital statistical analysis skills for data and information.
Teaching and learning strategies .9
• Direct practical application for each student within advanced computer labs. • Project-Based Learning strategy for designing smart databases or spreadsheets. • Continuous evaluation and follow-up through periodic practical tests to measure the speed and accuracy of performance.
Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
Tests and discussion	+ Practical Theoretical	Word Processor Features / Running Word / Basic Word Window Elements / Language Switching / Paragraph Definition / Merging and / Splitting Paragraphs Selecting (Highlighting) .Text	Knowledge and practical application	2	2&1
Tests and reports	+ Practical Theoretical	/ New / Open Stock File Close Document / Save New Document / Save / Existing Document Preview Before Printing / Close Document / Finish Word	Knowledge and practical application	2	3
Tests and discussion	+ Practical Theoretical	/ Clipboard : Cut / Copy Paste / Copy Format Font: Change font / Font size / Increase and decrease font size / Clear formatting / Change font color / Highlight / color / Subscript Superscript / Change / case / Underline style Effects / Letter spacing / Paragraph: Numbering / Bulleted Listing Creating a Bulleted List from Existing Text / Remove bullet points / / Space Prefix / Paragraph Spacing Line Spacing / Text / Direction / Alignment Borders and Shading Styles: Normal / No Spacing / Title 1 / Title 2 Subtitle / Change / / Styles / Show Preview / Disable Related Styles Options	Knowledge and practical application	2	

			/ Edit: Search / Go to Replace / Select				
	Tests and reports	+ Practical Theoretical	/ Pages: Blank page Cover page / Page break / Table: Inserting a table / Drawing a table Converting text to a / tableExcel spreadsheet / Quick tables / Table styles / Drawing table : borders. Illustrations Image / Clip art / Shapes /Smart art Diagram /	Knowledge and practical application	2	5	
	Tests and discussion	+ Practical Theoretical	: Header and footer Header / Footer / Page / number Text: Text box / Decorative textWord art Signature line / Date / / and time / Object .Equation / Symbol	Knowledge and practical application	2	6	
	Tests and reports	+ Practical Theoretical	/ Features: Attributes .Colors / Fonts / Effects	Knowledge and practical application	2	7	
	Tests and discussion	+ Practical Theoretical	/ Features: Themes Colors / Fonts / Effects / Page settings : Margins Page size / Orientation Page background : sign / Watercolor / Page color Page borders Sort: Position / Bring to the front / Send to the back / Text wrap / Align . Group / Rotate /	Knowledge and practical application	2	9&8	
	Tests and reports	+ Practical Theoretical	Table of Contents / Add Text / Update Table Footnotes : Insert footnote / Insert endnote / Footnote lower Next / Show Notes References and citations: Insert citation / Source management / Style	Knowledge and practical application	2	11&10	

			Captions : Insert a caption / Index: Insert index Mark For index entry update/				
	Tests and discussion	+ Practical Theoretical	/ Create: Envelopes Labels Proofreading: Spelling / and grammar check / Research / Thesaurus Translation / Translation screen hint / Language selection / Word count Comments: New / comment / Delete Previous / Next / Track: Track changes Balloons / Final appearance tag / Show tags / Review section / Changes: Accept Reject / Previous / Next Protection: Document protection Document viewing / options : Print layout / Full- screen reading / Web layout / Outline Draft / Show and hide: Ruler Grid lines / Document map / Thumbnail Zoom in and out: 100% page / 2 pages / Page 1 / width framework : New frame Sort all / Split / Change / frames Microsoft Office Word instructions	Knowledge and practical application	2	13&12	
	Tests and reports	+ Practical Theoretical	Networks and their / types / Network forms Network protocols / The Internet and its development / The / Internet and Intranet	Knowledge and practical application	2	15&14	

			Firewalls / Some basic / Internet concepts Connecting to the Internet / Opening an / Internet browser Components of an Internet browsing window / Browser icons Web addresses / Using / the browser / Changing the homepage / Toolbars Closing the browser / and disconnecting from / the Internet / History / Saving favorite pages Search engines / How to search for information / on the Internet Copying text and images / to any application Downloading files from the Internet / Preparing for printing / Printing				
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Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Excel & Access / ICDL Advanced). تطبيقات الحاسوب المتقدمة وقواعد البيانات
Main references (sources)	البرمجيات التطبيقية وإدارة قواعد البيانات - د. خالد علي العاشق.
Recommended supporting books and references (...scientific journals, reports)	(Digital Health & Pharmacy Software Reports). مجلات تقنية المعلومات والصيدلة الرقمية
references , websites	Microsoft Office Training Center, Coursera Data Analysis.

Course Name .1
Arabic Language 2
Course Code .2
NTU 202
Term/Year .3
Second semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 2 / Total number of units: 2
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Jamal Fateh Ali The email: Jamal1978@ntu.edu.iq
Course Objectives .8
☐ To deepen the student's skills in rhetorical and critical analysis of literary and scientific texts. Developing academic research skills and the ability to write scientific reports and letters with linguistic proficiency. ☐ Enabling the student to develop skills in public speaking, delivery, and managing professional dialogues in correct classical Arabic.
Teaching and learning strategies .9
• Interactive workshops dedicated to editing and academically rewriting medical texts. ☐ Giving individual speech presentations in front of colleagues to enhance self-confidence and linguistic fluency. • Guided reading and tracking the structure of published scientific articles and correcting common errors in them.

Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
Tests and discussion	theoretical	– Subject and predicate	Knowledge and practical application	2	1
Tests and discussion	theoretical	– The verb, the subject, and the object	Knowledge and practical application	2	2
Tests and discussion	theoretical	– Intransitive verbs and transitive verbs	Knowledge and practical application	2	3
Tests and discussion	theoretical	– pronouns	Knowledge and practical application	2	4
Tests and discussion	theoretical	Original diacritical marks	Knowledge and practical application	2	5
Tests and discussion	theoretical	– Sub-diacritical marks	Knowledge and practical application	2	6
Tests and discussion	theoretical	– The Five Verbs	Knowledge and practical application	2	7
Tests and discussion	theoretical	– Conjunctions and their meanings	Knowledge and practical application	2	8
Tests and discussion	theoretical	– Number and counted	Knowledge and practical application	2	9
Tests and discussion	theoretical	– Hamzat al-Wasl	Knowledge and practical application	2	10
Tests and discussion	theoretical	– 'Hamza al-qat	Knowledge and practical application	2	11

Tests and discussion	theoretical	– Extra letters	Knowledge and practical application	2	12
Tests and discussion	theoretical	– Noon and Tanween	Knowledge and practical application	2	13
Tests and discussion	theoretical	– Administrative discourse	Knowledge and practical application	2	14
Tests and discussion	theoretical	– Some common mistakes	Knowledge and practical application	2	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	المراسلات والتحرير الإداري للجامعات والمعاهد التقنية.
Main references (sources)	التحرير العربي والأسلوبية - د. محمد صالح الشنطي
Recommended supporting books and references (scientific journals, reports...)	أدب الخطاب الرسمي في المؤسسات الصحية، أصول الكتابة العلمية والإدارية
references , websites	بوابة اللغة العربية، المعجم الوسيط الإلكتروني

Course Name .1
Crimes of the Ba'ath regime in Iraq
Course Code .2
NTU 203
Term/Year .3
First semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In – person/ physical
Total study hours / Total number of units .6
Total number of study hours: 2 / Total number of units: 2
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Jamal Fateh Ali The email: Jamal1978@ntu.edu.iq
Course Objectives .8
☐ Documenting and preserving the historical memory of the human rights violations and crimes committed during that era. ☐ To promote the values of social justice, good citizenship, and respect for human rights among students. ☐ Analyzing the political, economic, social and psychological effects of these crimes on contemporary Iraqi society.
Teaching and learning strategies .9
☐ Historical and documentary lectures supported by official documents and eyewitness accounts. ☐ Presentation and discussion of documentaries and international human rights reports issued on this subject. ☐ Assigning students to prepare short research papers and reports on specific issues such as mass graves or the draining of marshes.
Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	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 categories – ,Definition of crime linguistically and technically	Knowledge and practical application	2	1
Tests and discussion	theoretical	– Crime Departments – Crimes of the Ba'ath regime according to the documentation of the Iraqi High 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 – Effects of psychological crimes	Knowledge and practical application	2	4
Tests and discussion	theoretical	Social crimes Militarization of society The Ba'ath regime's stance on religion	Knowledge and practical application	2	5
Tests and discussion	theoretical	– Violations of Iraqi laws – Images of human rights violations and crimes of authority	Knowledge and practical application	2	6
Tests and discussion	theoretical	– Some decisions regarding the political and military violations of the Ba'ath regime	Knowledge and practical application	2	7
Tests and discussion	theoretical	– Prisons and detention centers of the Ba'ath regime	Knowledge and	2	8

			practical application		
Tests and discussion	theoretical	– Environmental crimes of the Ba'ath regime in Iraq	Knowledge and practical application	2	9
Tests and discussion	theoretical	– War and radioactive pollution and landmine 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 – Demolition of 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	– The events of the mass graves and genocide committed by the Ba'athist regime	Knowledge and practical application	2	14
Tests and discussion	theoretical	– Chronological classification of genocide graves in Iraq	Knowledge and practical application	2	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	المنهاج المقرر من وزارة التعليم العالي والبحث العلمي لتاريخ وسجل توثيق جرائم النظام البائد
Main references (sources)	موسوعة توثيق الجرائم والدراسات التاريخية الحديثة في العراق
Recommended supporting books and references (scientific journals, reports...)	التقارير الحقوقية الصادرة عن مؤسسة الشهداء والهيئة الوطنية لتوثيق الجرائم
references , websites	البوابة الإلكترونية لمؤسسة الشهداء العراقية، أرشيف الحقوق والحريات

Course Name .1
Professional ethics
Course Code .2
NTU 204
Term/Year .3
First semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 2 / Total number of units: 2
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Yildirim Fikret Abdurrazak The email: yildirim@ntu.edu.iq
Course Objectives .8
☐ To familiarize the student with the laws, charters, and ethical and legal responsibilities regulating the pharmacy profession. ☐ Establishing the values of scientific integrity, medical confidentiality, and protecting the patient's interest as a top priority. • Training students on how to properly deal with ethical dilemmas and professional conflicts of interest.
Teaching and learning strategies .9
☐ Studying and analyzing real-life cases(Case Studies) of complex ethical situations and discussing their solutions. • Role-playing technique to simulate communication scenarios between the pharmacist and the patient or medical staff. • Brainstorming sessions and group discussion groups to reinforce ethical critical thinking.

Course Structure .10

	Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week	
	Duties Short tests Reports	Theoretical lectures Group discussions	. Morality	Introducing the concept of ethics to the student	2	1	
	Duties Short tests Reports	Theoretical lectures Group discussions	Work and . profession	Explain to the student the difference between work and profession	2	2	
	Duties Short tests Reports	Theoretical lectures Group discussions	.Professional ethics	The student understands the nature of .professional ethics	2	3	
	Duties Short tests Reports	Theoretical lectures Group discussions	Values and .professional ethics	Introducing the student to values and professional ethics	2	45&	
	Duties Short tests Reports	Theoretical lectures Group discussions	Patterns behavior not in the Ethics .profession	Introducing the student to patterns of unethical behavior Administrative + corruption bribery + cheating in the workplace	2	6&7	
	Duties Short tests Reports	Theoretical lectures Group discussions	Methods and means of establishing .professional ethics	Understanding the means of instilling values	2	8	
	Duties Short tests Reports	Theoretical lectures Group discussions	Ethics of practicing medical :professions Characteristics 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 Short tests Reports	Theoretical lectures Group discussions	2. The relationship of the medical technician with society and his responsibility towards the environment and .public safety	Introducing the student to the role of medical technicians in society	2	11&12
Duties Short tests Reports	Theoretical lectures Group discussions	3. Professional relationships (the relationship of the medical technician with his colleagues in the health .(institution	Clarifying the relationship of the medical technician with his colleagues and superiors	2	13&14
Duties	Theoretical lectures Group discussions	4. The ethics of teaching and learning on .patients	Understanding and clarifying the ethics of teaching and learning on patients	2	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	- أخلاقيات وتطبيقات مهنة الصيدلة والرعاية الصحية وزارة الصحة العراقية/نقابة الصيدلانيين
Main references (sources)	Pharmacy Ethics and Decision Making - Joy Wingfield & David Badcott (Pharmaceutical Press).
Recommended supporting books and references (...scientific journals, reports)	Code of Ethics for Pharmacists (International Pharmaceutical Federation - FIP).
references , websites	FIP Ethics Portal (fip.org), Bioethics Resources NCBI.

Course Name .1
Life statistics
Course Code .2
MTIK 202
Term/Year .3
Second semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 2 / Total number of units: 2
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Hassan Mohamed Nour El-Din The email: hasan_mohammed@ntu.edu.iq
Course Objectives .8
☐ Understanding basic statistical concepts and their vital applications in the medical and pharmaceutical fields. ☐ Enabling the student to collect, classify, and present vital data using precise scientific methods. ☒ Training students to select and use appropriate statistical tests to analyze and interpret research results.
Teaching and learning strategies .9
• Theoretical lectures focused on solving mathematical problems and statistical equations manually. • Practical training in computer labs on modern statistical software such as(SPSS) or (Excel). • Analyzing published medical research papers to evaluate and understand the statistical aspect used in them.

Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Hours	Week
a test	Traditional ,lectures seminars , group discussions	Definition of statistics. Methods of data collection, presentation and ,description of statistical data) preparation of questionnaires . (uncategorized data	2	1
a test	Traditional ,lectures seminars , group discussions	Representing frequency distributions ("grouped data") Tabular presentation "Frequency "Distribution Tables	2	2
a test	Traditional ,lectures seminars , group discussions	The graphical representation – the histogram, the frequency curve , the .frequency polygon	2	3
a test	Traditional ,lectures seminars , group discussions	Measures of central tendency , the . arithmetic mean	2	4
a test	Traditional ,lectures seminars , group discussions	.The median, the mode	2	5
a test	Traditional ,lectures seminars , group discussions	Introduction to Sampling Theory: Its Meaning and Reasons for Selection	2	6
a test	Traditional ,lectures seminars , group discussions	,Vital statistics , percentage and rate .mortality statistics	2	7
a test	Traditional ,lectures seminars , group discussions	.Fertility statistics	2	8
a test	Traditional ,lectures seminars , group discussions	Disease statistics, life charts	2	9
a test	Traditional ,lectures	Definition of health statistics and its .sources	2	10

	seminars , group discussions			
a test	Traditional ,lectures seminars , group discussions	The fields that health statistics .address	2	11
a test	Traditional ,lectures seminars , group discussions	Statistics on causes of death ,(certificate) Medical the reason Death, death certificate	2	12
a test	Traditional ,lectures seminars , group discussions	Statistics of health institutions	2	13
a test	Traditional ,lectures seminars , group discussions	Rates and rates specific to hospitals and patients, treatment days, length of stay (average number of days of (stay	2	14
a test	Traditional ,lectures seminars , group discussions	Household occupancy rate, income rate	2	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if (applicable	Biostatistics: A Foundation for Analysis in the Health Sciences - Wayne W. Daniel (Wiley).
Main references (sources)	Basic & Clinical Biostatistics - Beth Dawson & Robert G. Trapp (McGraw-Hill).
Recommended supporting books and references (scientific journals, reports...)	SPSS for Health and Social Care - Ronán M. Conroy, Journal of Biometrics.
references , websites	BMJ Statistics Notes, OpenIntro Statistics.

Course Name .1
Pharmacists
Course Code .2
PHT203
Term/Year .3
First semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Marwa Abdulkarim Bakr The email: maraw.kirkuk211@gmail.com
Course Objectives .8
☐ Understanding the physical and chemical basis for the design and development of different pharmaceutical forms. ☐ Studying the factors affecting drug stability , dissolution rate, and absorption within the body. ☒ Acquiring the necessary skills to determine appropriate doses and calculate the proportions of additives in pharmaceutical formulations.
Teaching and learning strategies .9
☐ Applied laboratory experiments for the formulation and preparation of products (such as moisturizers, solutions, and suspensions. ☒ Education based on solving chemical and physical problems related to drug stability. ☒ Using visual demonstrations and discussion panels on modern drug delivery technology.
Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
Tests and discussion	theoretical	. Introduction. Medical Prescription. Definition, part .of a medical prescription	Lecture and discussion	4	1
Tests and discussion	theoretical	Solution: Definition, Benefits ,of Solution, Decomposition Stability, Coloring and Flavoring	Lecture and discussion	4	2
Tests and discussion	theoretical	,Ointment: Definition, Uses Benefits, Preparation ,Methods, Types Classification by Preparation .Method	Lecture and discussion	4	3
Tests and discussion	theoretical	,Definition of gel, its use benefits, methods of preparation, types, and classification according to the .method of preparation	Lecture and discussion	4	4
Tests and discussion	theoretical	Eye ointment types with examples	Lecture and discussion	4	5
Tests and discussion	theoretical	,Suppositories: definition uses, benefits, and examples	Lecture and discussion	4	6
Tests and discussion	theoretical	,Suppository rules, types displacement value	Lecture and discussion	4	7
Tests and discussion	theoretical	:Rules for suppositories .examples with calculations	Lecture and discussion	4	8
Tests and discussion	theoretical	Classification of ,suppositories, their types ,uses, preparation methods .and mold lubrication	Lecture and discussion	4	9
Tests and discussion	theoretical	.Capsules: Definition, Uses	Lecture and discussion	4	10
Tests and discussion	theoretical	.Capsules for therapeutic uses	Lecture and discussion	4	11

Tests and discussion	theoretical	,Medical tablets: their types methods of preparation and .granulation	Lecture and discussion	4	12
Tests and discussion	theoretical	Binding agents for medical ,tablets, dispersible agents .coloring agents, examples	Lecture and discussion	4	13
Tests and discussion	theoretical	Standardization of medical tablets	Lecture and discussion	4	14
Tests and discussion	theoretical	,Dyes - Definition, Uses Classification with Examples	Lecture and discussion	4	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Martin's Physical Pharmacy and Pharmaceutical Sciences - Patrick J. Sinko (Lippincott Williams & Wilkins).
Main references (sources)	Aulton's Pharmaceutics: The Design and Manufacture of Medicines - Michael E. Aulton & Kevin M.G. Taylor (Elsevier).
Recommended supporting books and references (...scientific journals, reports)	International Journal of Pharmaceutics, European Journal of Pharmaceutical Sciences.
references , websites	ScienceDirect Pharmaceutics, US Pharmacopeia (USP.org).

Course Name .1
Industrial principles
Course Code .2
PHT204
Term/Year .3
First semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Omid Mohsen Hassan The email: Phomeedmuhsin@uokirkuk.edu.iq
Course Objectives .8
☐ Identifying the basic engineering processes used in pharmaceutical factories (such as grinding, mixing, and drying. ☐ Understanding the principles of heat and mass transfer and their direct effect on pharmaceutical raw materials. ☐ Studying the fundamentals and mechanics of the operation of major industrial devices and equipment in the pharmaceutical manufacturing environment.
Teaching and learning strategies .9
☐ Theoretical explanation supported by flowcharts and illustrations of factories. ☒ Field visits and virtual simulations of production lines and complex industrial equipment. ☐ Solving mathematical and applied problems related to the efficiency of industrial processes and production rates.
Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
a test	,Lecture ,discussion presentation of educational videos and films	Introduction to industrial	Industrial production	4	1
practical control	,Lecture ,discussion presentation of educational videos and films	Large and small scale	Production in small and large quantities	4	2
a test	,Lecture ,discussion presentation of educational videos and films	Practical size	Granular size	4	3
a test	,Lecture ,discussion presentation of educational videos and films	Size reduction	Granule reduction	4	4
practical control	,Lecture ,discussion presentation of educational videos and films	sieving..	palm trees	4	5
practical control	,Lecture ,discussion presentation of educational	Mixing	Mixing	4	6

		videos and films					
	practical control	,Lecture ,discussion presentation of educational videos and films	Type of mixture.	Types of mixtures	4	7	
	practical control	,Lecture ,discussion presentation of educational videos and films	Liquid mixture.	Mixing liquids	4	8	
	practical control	,Lecture ,discussion presentation of educational videos and films	Solid mixture	steel mixing	4	9	
	practical control	,Lecture ,discussion presentation of educational videos and films	Evaporation	Evaporation	4	10	
	practical control	,Lecture ,discussion presentation of educational videos and films	Filtration.	Nomination	4	11	
	practical control	,Lecture ,discussion presentation of educational videos and films	Extraction.	Extraction	4	12	
	practical control	,Lecture ,discussion	Drying	drying	4	13	

		presentation of educational videos and films					
	practical control	,Lecture ,discussion presentation of educational videos and films	Packaging	Packaging	4	14	
	practical control	,Lecture ,discussion presentation of educational videos and films	Revision.	Review	4	15	

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Pharmaceutical Unit Operations and Unit Processes - Terence Allen.
Main references (sources)	Theory and Practice of Industrial Pharmacy - Leon Lachman, Herbert A. Lieberman, Joseph L. Kanig.
Recommended supporting books and references (...scientific journals, reports)	Chemical Engineering in the Pharmaceutical Industry, Journal of Pharmaceutical Innovation.
references , websites	ISPE (International Society for Pharmaceutical Engineering - ispe.org).

Course Name .1
Principles of Pharmaceutical Chemistry
Course Code .2
PHT205
Term/Year .3
First semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Ghassan Jalal Aswad The email: ghasan-jalal@ntu.edu.iq
Course Objectives .8
☐ Understanding the close relationship between the chemical structure of a drug compound and its biological activity(SAR). ☐ Identifying the physicochemical properties of drugs and their effect on absorption and distribution in the body. Understanding the mechanisms of drug binding to biological receptors at the molecular level.
Teaching and learning strategies .9
lectures that clearly link organic chemistry and pharmacology. • Using 3D molecular modeling software to visualize the drug's interaction with the receptor. ☐ Interactive workshops for analyzing structural frameworks and predicting the biological effects of new compounds.

Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
Tests and discussion	theoretical	Definition: Introduction to Pharmacopoeia, Inorganic Pharmacopoeia, Organic Pharmacopoeia	Lecture and discussion	4	1
Tests and discussion	theoretical	Physical, chemical, and biological properties of the human body	Lecture and discussion	4	2
Tests and discussion	theoretical	,Study of the physical chemical, and pharmacological properties of analgesic agents	Lecture and discussion	4	3
Tests and discussion	theoretical	,Study of the physical chemical, and pharmacological properties of analgesic agents	Lecture and discussion	4	4
Tests and discussion	theoretical	Sedative/hypnotic drugs	Lecture and discussion	4	5
Tests and discussion	theoretical	Sedative/hypnotic drugs	Lecture and discussion	4	6
Tests and discussion	theoretical	, Cholinergic drugs ,anticonvulsants antiepileptic drugs	Lecture and discussion	4	7
Tests and discussion	theoretical	, Cholinergic drugs ,anticonvulsants antiepileptic drugs	Lecture and discussion	4	8
Tests and discussion	theoretical	Central nervous system stimulants	Lecture and discussion	4	9
Tests and discussion	theoretical	Central nervous system stimulants	Lecture and discussion	4	10
Tests and discussion	theoretical	Cardiovascular drugs	Lecture and discussion	4	11

Tests and discussion	theoretical	Cardiovascular drugs	Lecture and discussion	4	12
Tests and discussion	theoretical	Anti-infective drugs	Lecture and discussion	4	13
Tests and discussion	theoretical	,medications , antifungals antibacterials	Lecture and discussion	4	14
Tests and discussion	theoretical	,medications , antifungals antibacterials	Lecture and discussion	4	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Foye's Principles of Medicinal Chemistry - Thomas L. Lemke et al. (Lippincott Williams & Wilkins).
Main references (sources)	Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry - John M. Beale & John H. Block.
Recommended supporting books and references (...scientific journals, reports)	An Introduction to Medicinal Chemistry - Graham L. Patrick, Journal of Medicinal Chemistry.
references , websites	ACS Medicinal Chemistry Letters, PubChem (pubchem.ncbi.nlm.nih.gov).

Course Name .1
Principles of Medicine
Course Code .2
PHT206
Term/Year .3
First semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Muhammad Khader Bayez The email: mohammad@ntu.edu.iq
Objectives Course .8
☐ Understanding the basic concepts of pharmacokineticsand pharmacodynamics. ☐ To become familiar with the main drug classifications and basic therapeutic groups in medicine. Understanding the general mechanisms of action of drugs, their side effects, and minor drug interactions.
Teaching and learning strategies .9
☐ Designing mind maps to classify medications and facilitate the memorization of various therapeutic groups. ☐ Studying simplified clinical cases to understand how to choose the appropriate medication based on the patient's condition. discussions and the use of virtual digital simulation platforms to assess the effects of drugs on organs.

Course Structure .10

Evaluation	Teaching method	Unit/Topic Name	Required outputs	Hours	Week
a test	,Lecture ,discussion presentation	General aspects of Drugs Parmacology Name and classification ----- Practical: General term in practical pharmacology	Introducing students to the basic concepts of pharmacology ----- Basic practical pharmacology terminology	4	1
a test	,Lecture ,discussion presentation	Pharmacodynamics Drugs-receptor ----- Practical: Discussion	The drug's mechanism of action drug involves . receptors ----- practical aspect discussion	4	2
practical control	,Lecture ,discussion presentation	Pharmacokinetics ----- Practical: Seminar	Pharmacokinetics ----- practical aspect Introductory dialogue	4	3
a test	,Lecture ,discussion presentation	Routes of Administration ----- Practical: Routes of Administration	Methods of administering) medication (theoretical aspect ----- practical aspect Methods of administering the drug	4	4
a test	,Lecture ,discussion presentation	AN S Neurotransmitters receptors ----- Practical: Practical: Discussion	automatic device Transporters and receptors ----- practical aspect discussion	4	5

practical control	,Lecture ,discussion presentation	Cholinergic drugs Direct, indirect ----- Practical: Seminar	Parasympathetic nervous system drugs Direct and indirect ----- practical aspect Introductory dialogue	4	6
a test	,Lecture ,discussion presentation	Anticholinergic drugs Ganglionic blocking drugs, Neuromuscular blocking drugs ----- Practical: Effect of Sympathetic drugs parasympathetic	parasympathomimetic drugs and ganglionic and neuromuscular blocking agents ----- practical aspect Effects of sympathomimetic and parasympathomimetic drugs	4	7
practical control	,Lecture ,discussion presentation	Adrenergic drugs ----- Practical: Discussion	sympathetic nervous system drugs ----- practical aspect discussion	4	8
practical control	,Lecture ,discussion presentation	Adrenergic antagonist α, β blocker ----- Practical: Seminar	Alpha and beta blockers ----- practical aspect Introductory dialogue	4	9
a test	,Lecture ,discussion presentation	CNS Depression drugs, Alcohol - Sedative hypnotics Benzodiazepine Barbiturate, ----- Practical Drugs antagonism	Central nervous system depressants ,Alcohol, sedatives and sleeping pills ----- Practical aspect: Drug antagonism	4	10
a test	,Lecture ,discussion presentation	Anticonvulsant Antidepressants ----- Practical: Discussion	Anti-epileptics and antidepressants aspect Practical discussion	4	11

practical control	,Lecture ,discussion an offer My presentation	CNS stimulant drugs. ----- Practical: Seminar	Central nervous system stimulants Introductory topics :	4	12
practical control	,Lecture ,discussion presentation	Anlgesic : Narcotin or Opioid - ----- Practical Evaluation of analgesics	narcotic painkillers poppy ----- practical aspect Painkiller evaluation	4	13
a test	,Lecture ,discussion presentation	Analgesics: NSAIDs ----- Practical Practical: Discussion	Non-steroidal anti- inflammatory painkillers ----- practical aspect discussion	4	14
practical control	,Lecture ,discussion presentation	Anesthetics, general, local anesthetics ----- Practical: Seminar	General and local anesthetic drugs ----- practical aspect Introductory dialogue	4	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Lippincott Illustrated Reviews: Pharmacology - Karen Whalen (Lippincott Williams & Wilkins).
Main references (sources)	Basic & Clinical Pharmacology - Bertram G. Katzung (McGraw-Hill).
Recommended supporting books and references (scientific journals, reports...)	Goodman & Gilman's The Pharmacological Basis of Therapeutics - Laurence Brunton et al.
references , websites	DrugBank Online (drugbank.com), IUPHAR/BPS Guide to PHARMACOLOGY.

Course Name .1
Medicinal plants and natural products
Course Code .2
PHT207
Term/Year .3
First semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
:tends A Name: Shen Ay Ahmed Mohamed The letter shan.a11@ntu.edu.iq
Course Objectives .8
☐ Studying plant classification and sources of natural compounds of medical and therapeutic importance. ☐ Understanding the scientifically approved methods for collecting, drying, and preserving medicinal plants to prevent damage to their components. ☐ Identifying the chemically active groups in plants (such as alkaloids and volatile oils).
Teaching and learning strategies .9
• Microscopic and macroscopic examination of samples of medicinal plants and herbs within the laboratory. ☐ Practical application of Total Liquid Chromatography(TLC) extraction and separation methods to identify natural products. ☐ Assigning students the task of preparing a student herbarium as a group practical activity for classifying plants.

Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
a test	,Lecture ,discussion presentation	Introduction and definition of medicinal plants and natural products.	Introduction and definition of medicinal plants and natural products	4	1
a test	,Lecture ,discussion presentation	Collection and preparation of medicinal plants, methods of collection, drying and storage and conditions of storage.	Collection and preparation of medicinal plants, methods of collection, drying, storage methods and storage conditions	4	2
a test	,Lecture ,discussion presentation	Classification of medicinal plants 1. Chemical classification 2. Biological classification 3. Alpha-beta classification 4. Pharmacological classification 5. Taxonomic classification	Classification of medicinal plants Chemical .1 .classification Biological classification Alpha-beta .3 .classification. Pharmacological .classification Classification	4	3
a test	,Lecture ,discussion presentation	Evaluation of medicinal plants which includes: 1. Physical evaluation 2. Chemical evaluation 3. Pharmacological evaluation 4. Sensory evaluation 5. Microscopic evaluation 6. Chromatography	Evaluation of medicinal plants which includes: Physical assessment Chemical assessment Pharmacological assessment Sensory .4 .assessment 5 Microscopic .assessment 6 Chromatography	4	4
a test	,Lecture ,discussion presentation	Carbohydrates and drugs containing carbohydrates.	Carbohydrates and medicines that contain carbohydrates	4	5

		a. Introduction about the medicinal plants which contain carbohydrates	B. Introduction to medicinal plants that contain carbohydrates		
a test	,Lecture ,discussion presentation	b.Classification of carbohydrates c.Synthesis of carbohydrates in plants.	B. Classification of carbohydrates .C Carbohydrate composition in plants.	4	6
a test	,Lecture ,discussion presentation	d.Medicinal plants which contain carbohydrates and their medical uses. e.Preparation , purification and isolation of carbohydrates from the plants.	D- Medicinal plants that contain carbohydrates and their medical uses ,E- Preparation , purification and isolation of carbohydrates from plants.	4	7
a test	,Lecture ,discussion presentation	f.Mucilage and gums	Gum and gel	4	8
a test	theoretical	The glycosides and the plants containing glycosides. a. Definition of glycosides b. Extraction, isolation and purification of glycosides	Glycosides and plants that contain glycosides C. Definition of glycosides ,D. Extraction, isolation and purification of glycosides	4	9
a test	,Lecture ,discussion presentation	c.Classification of glycosides. d.Examples for drugs belonging to each class of glycosides and their medical uses.	C. Classification of glycosides D. Examples of drugs belonging to each class of glycosides and their medical uses	4	10
a test	,Lecture ,discussion presentation	alkaloids: a. Their definition and properties. b. Classification of alkaloids	Examples of raw materials belonging to alkaloids group which have medical uses	4	11
a test	,Lecture ,discussion presentation	Examples for crude drugs belonging to alkaloids with their medical uses.	:Essential oils B. Definition of volatile oils	4	12

	My presentation				
a test	,Lecture ,discussion presentation	Volatile oils: a. Definition of volatile oils	C. General properties of volatile oils Methods of preparing them.	4	13
a test	,Lecture ,discussion an offer My presentation	General properties of volatile oils .	Classification of volatile oils with examples of medicinal plants that contain volatile oils Its general and medical uses	4	14
a test	,Lecture ,discussion presentation	Classification of volatile oils with examples for drugs containing volatile oils.	Introduction and definition of medicinal plants and natural products	4	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Trease and Evans' Pharmacognosy - William Charles Evans (Elsevier).
Main references (sources)	Pharmacognosy, Phytochemistry, Medicinal Plants - Jean Bruneton (Intercept).
Recommended supporting books and ,references (scientific journals (...reports	Fundamentals of Pharmacognosy and Phytotherapy - Michael Heinrich et al., Journal of Natural Products.
references , websites	Phytochemical and Ethnobotanical Databases (USDA), American Botanical Council.

Course Name .1
Fundamentals of therapeutic applications
Course Code .2
PHT208
Term/Year .3
First semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of units: 3 / Total number of study hours: 3
(Name of the course coordinator (if applicable) More than one name is mentioned .7
tends A Name: Zainab Khairallah Sadiq The letter zainbsaleh77@ntu.edu.iq
Course Objectives .8
☐ Enabling the student to link pharmaceutical knowledge to the comprehensive and personalized treatment plan for the patient. ☐ Understanding the internationally approved guidelines for treating common and chronic diseases. Developing skills in drug monitoring, evaluating treatment effectiveness, and reducing its adverse effects.
Teaching and learning strategies .9
• Education based on the study of real clinical cases and interactive medical simulation. ☐ Virtual or real-life clinical rounds and discussion of patient files with supervisors. • Practical workshops for designing and modifying treatment plans based on the patient's laboratory data.
Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
a test	,Lecture ,discussion video presentation	Drugs acting on the GIT (Gastrointestinal Tract) System Antacids Anti- cholinergics	Introducing students to medications that affect the digestive system	3	1
practical control	,Lecture ,discussion video presentation	Drugs acting on the GIT (Gastrointestinal Tract) System H2 Antagonist Proton-Pump Inhibitors	Identifying Medications that Affect the Digestive System Part 2 -	3	2
a test	,Lecture ,discussion video presentation	Drugs acting on the GIT (Gastrointestinal Tract) System Anti-diarrheal drugs Laxative Drugs	Identifying Medications that Affect the Digestive System Part 3 -	3	3
a test	,Lecture ,discussion video presentation	Antispasmodics Antiemetic Nausea and Vomiting	Identifying Medications that Affect the Digestive System Part 4 -	3	4
practical control	,Lecture ,discussion video presentation	(Diuretics) Osmotic Carbonic anhydrase inhibitor Loop	Identifying diuretic drugs	3	5
practical control	,Lecture ,discussion video presentation	(Diuretics) Part 2 Thiazide Potassium Sparing	Understanding - Diuretic Drugs Part Two	3	6
practical control	,Lecture ,discussion	Drug act on the Respiratory System (Bronchodilator)	Identifying medications that affect the	3	7

	video presentation		respiratory system		
practical control	,Lecture ,discussion video presentation	Drug act on the Respiratory System)Anti-asthmatic drug)	Identifying Drugs Affecting the Respiratory System - Part Two	3	8
practical control	,Lecture ,discussion video presentation	Antiseptics And Disinfectants	Sanitizers and disinfectants	3	9
practical control	,Lecture ,discussion video presentation	Drug act on the Cardiovascular System)Anti-hypertensive drug (	Drugs that affect the cardiovascular system; blood pressure medications	3	10
practical control	,Lecture ,discussion video presentation	Drug act on the Cardiovascular System)Anti-anginal drug (	Drugs that affect the cardiovascular system; drugs for .angina	3	11
practical control	,Lecture ,discussion video presentation	Drug acting on the Cardiovascular System)Anti-arrhythmic Drugs (-tonic drugs	Drugs that affect the cardiovascular system; drugs for irregular heartbeat	3	12
practical control	,Lecture ,discussion video presentation	Antibiotics)Penicillin (	Antibiotics Part 1	3	13
practical control	,Lecture ,discussion video presentation	Antibiotics Cephalosporin	Antibiotics Part 2	3	14
practical control	,Lecture ,discussion video presentation	Antibacterial Drugs Sulfonamides + Cotrimoxazole	Antibiotics Part 3	3	15

practical control	,Lecture ,discussion video presentation	Antibiotics Quinolones	Antibiotics Part 4	3	16
practical control	,Lecture ,discussion video presentation	Antibiotics Aminoglycoside	Antibiotics Part 5	3	17

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if (applicable	Pharmacotherapy: A Pathophysiologic Approach - Joseph T. DiPiro et al. (McGraw-Hill).
Main references (sources)	Applied Therapeutics: The Clinical Use of Drugs - Caroline S. Zeind & Michael G. Carvalho.
Recommended supporting books and references (scientific journals, reports...)	Clinical Pharmacy and Therapeutics - Roger Walker & Cate Whittlesea (Elsevier).
references , websites	Medscape Drugs & Diseases, UpToDate Clinical Resources.

Course Name .1
toxins
Course Code .2
PHT209
Term/Year .3
First semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 2 / Total number of units: 2
(Name of the course coordinator (if applicable) More than one name is mentioned .7
tends A Name: Noha Hamza Khader The letter nuha70hamza@ntu.edu.iq
Objectives Course .8
☐ Studying the molecular and cellular mechanisms of the effect of toxic substances and chemical pollutants on the body. ☐ Identifying the clinical symptoms of poisoning from drug or environmental overdoses. ☐ Understanding rapid diagnosis methods, first aid, and determining the appropriate antidote for each case.
Teaching and learning strategies .9
• Analysis of documented emergency poisoning cases and discussion of their laboratory and clinical data. lectures enhanced with protocols from accredited global and local poison control centers. ☐ ,Discussion sessions on industrial and environmental toxins, methods of preventing them and how to deal with their pollutants.
Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
a test	,Lecture ,discussion	Introducing students to the toxicology	Introduction to Toxicology	2	1
a test	,Lecture ,discussion	Division of toxicology	Departments of Toxicology	2	2
a test	,Lecture ,discussion	Major factors that influence toxicity	The main factors that cause poisoning	2	3
a test	,Lecture ,discussion	Units used to measure chemicals in the environment	Standard units for calculating chemicals in the climate	2	4
a test	,Lecture ,discussion	How does the toxicity develop	How poisoning cases develop	2	5
a test	,Lecture ,discussion	Physical examination	Physical examinations for poisoning cases	2	6
a test	,Lecture ,discussion	Toxicokinetics	Toxin kinetics	2	7
a test	,Lecture ,discussion	Aspirin	Aspirin	2	8
a test	,Lecture discussion	Barbiturates	-----	2	9
a test	,Lecture discussion	Antidepressants	Antidepressants	2	10
a test	,Lecture ,discussion	Anticholinergic agents	-----	2	11
a test	,Lecture ,discussion	Carbon dioxide poisoning	Carbon dioxide poisoning	2	12
a test	,Lecture ,discussion	Cyanide poisoning	cyanide poisoning	2	13
a test	,Lecture ,discussion	Carbon monoxide poisoning	Carbon monoxide poisoning	2	14
a test	,Lecture ,discussion	Nicotine poisoning	poisoning	2	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Casarett & Doull's Essentials of Toxicology - Curtis D. Klaassen & John B. Watkins III (McGraw-Hill).
Main references (sources)	Lu's Basic Toxicology: Fundamentals, Target Organs, and Risk Assessment - Byung-Mu Lee et al.
Recommended supporting books and references (scientific journals, reports...)	Medical Toxicology - Richard C. Dart, Clinical Toxicology Journal.
references , websites	TOXNET (NCBI), ATSDR Toxic Substances Portal.

Course Name .1
Pharmaceuticals
Course Code .2
PHT211
Term/Year .3
Second semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
:tends A Name: Inas Jamil Abdulwahab The letter inas.jameel@ntu.edu.iq
Course Objectives .8
• Mastering the formulation and preparation of liquid, semi-solid, and solid preparations within the laboratory efficiently. ☐ Understanding the strict quality standards and quality control applied to the pharmaceutical products produced. ☐ Studying excipients and their essential role in enhancing product stability and delivery.
Teaching and learning strategies .9
☐ Intensive laboratory work to formulate medicines and verify the quality and appearance of the final product. • Collaborative learning through small groups to design an innovative and stable drug formulation. ☐ Solving pharmaceutical arithmetic problems related to the proportions and quantities of ingredients included in the preparation.

Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
Tests and discussion	,Lecture ,discussion presentation of educational videos and films	topical spray solution	Lecture and discussion	4	1
Tests and discussion	,Lecture ,discussion presentation of educational videos and films	Cataplasma ,(compresses): definition uses, and examples	Lecture and discussion	4	2
Tests and discussion	,Lecture ,discussion presentation of educational videos and films	:Medical injections .definition and uses	Lecture and discussion	4	3
Tests and discussion	,Lecture ,discussion presentation of educational videos and films	Medical injections: their types and classification .with examples	Lecture and discussion	4	4
Tests and discussion	,Lecture ,discussion presentation of educational videos and films	,Eye drops: definition .uses, and examples	Lecture and discussion	4	5
Tests and discussion	,Lecture ,discussion presentation of educational videos and films	,Nasal drops: definition .uses, and examples	Lecture and discussion	4	6
Tests and discussion	,Lecture ,discussion presentation of	,Ear drops: definition .uses, and examples	Lecture and discussion	4	7

	educational videos and films				
Tests and discussion	,Lecture ,discussion presentation of educational videos and films	.Pregnant	Lecture and discussion	4	8
Tests and discussion	,Lecture ,discussion presentation of educational videos and films	,Alcohols: Definition .Types, Examples	Lecture and discussion	4	9
Tests and discussion	,Lecture ,discussion presentation of educational videos and films	Collodion: Definition and methods of preparation with .examples	Lecture and discussion	4	10
Tests and discussion	,Lecture ,discussion presentation of educational videos and films	,Incompatibility definition, types of incompatibility with .examples	Lecture and discussion	4	11
Tests and discussion	,Lecture ,discussion presentation of educational videos and films	The phenomenon of incompatibility, general methods for treating .incompatibility	Lecture and discussion	4	12
Tests and discussion	,Lecture ,discussion presentation of educational videos and films	incompatibility sodium Salicylates , sodium benzoates, and other .reactants	Lecture and discussion	4	13
Tests and discussion	,Lecture ,discussion presentation of educational videos and films	Carbon dioxide is formed as a result of incompatibility with the .examples	Lecture and discussion	4	14
Tests and discussion	,Lecture ,discussion presentation of	Calculations	Lecture and discussion	4	15

	educational videos and films					
Course Evaluation .11						
The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc						
Learning and teaching resources .12						
Required textbooks (methodology, if applicable)			Pharmaceutical Formulation Design and Calculation - Suusha K. Das.			
Main references (sources)			Handbook of Pharmaceutical Excipients - Raymond C. Rowe, Paul J. Sheskey, Walter G. Cook (Pharmaceutical Press).			
Recommended supporting books and references (...scientific journals, reports)			Modern Pharmaceutics - Gilbert S. Banker & Christopher T. Rhodes, Journal of Drug Delivery Science.			
references , websites			European Pharmacopoeia Online, FDA Center for Drug Evaluation and Research.			

Course Name .1
Industrial Pharmacy
Course Code .2
PHT212
Term/Year .3
Second semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Sadiq Badr Nouri sadeq@ntu.edu.iq
Course Objectives .8
☐ Understanding the production lines and manufacturing processes of pharmaceuticals on a large commercial scale within factories. ☐ Understanding the requirements of Good Manufacturing Practices(cGMP) and International Quality Management Systems(ISO). ☐ Studying common manufacturing problems (such as disc fragmentation or color inconsistency) and how to address them.
Teaching and learning strategies .9
☐ Studying and simulating large production lines through educational videos and specialized software. ☐ Analyzing quality reports and real manufacturing failure cases and proposing engineering and pharmaceutical solutions for them. ☐ Conducting field visits to pharmaceutical factories to directly observe the regulatory and production equipment.

Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
a test	,Lecture ,discussion presentation of educational videos and films	Machine	Machines	4	1
practical control	,Lecture ,discussion presentation of educational videos and films	Granulation	endearment	4	2
a test	,Lecture ,discussion presentation of educational videos and films	Tablets, diluents and other	Pills – Relief and other things	4	3
a test	,Lecture ,discussion presentation of educational videos and films	Capsules	capsules	4	4
practical control	,Lecture ,discussion presentation of educational videos and films	Emulsions..	Emulsifiers	4	5
practical control	,Lecture ,discussion presentation of educational	Semisolids materials	Semi-solid materials	4	6

	videos and films				
practical control	,Lecture ,discussion presentation of educational videos and films	Suspension.	The Hangings	4	7
practical control	,Lecture ,discussion presentation of educational videos and films	Suppostories .	suppositories	4	8
practical control	,Lecture ,discussion presentation of educational videos and films	Liquid dosage form.	Liquid dosage form	4	9
practical control	,Lecture ,discussion presentation of educational videos and films	Backaging use in industrial pharmacy.	Packaging in the pharmaceutical industry	4	10
practical control	,Lecture ,discussion presentation of educational videos and films	Cosmetics.	cosmetics	4	11
practical control	,Lecture ,discussion presentation of educational videos and films	Antibiotics, methods quality control.	and Antibiotics methods of quality control	4	12

practical control	,Lecture ,discussion presentation of educational videos and films	Methods of isolation of antibiotics	Methods of isolating antibiotics	4	13
practical control	,Lecture ,discussion presentation of educational videos and films	Methods of production of antibiotics.	Methods of producing antibiotics	4	14
practical control	,Lecture ,discussion presentation of educational videos and films	Revision.	Review	4	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if (applicable	Lachman/Lieberman's The Theory and Practice of Industrial Pharmacy - Roop K. Khar et al.
Main references (sources)	Pharmaceutical Preformulation and Formulation - Mark Gibson (CRC Press).
Recommended supporting books and references (scientific journals, reports...)	Good Manufacturing Practices (GMP) Guidelines for Pharmaceuticals (WHO/FDA), Journal of Industrial Pharmacy.
references , websites	WHO Good Manufacturing Practices Guidelines, Parenteral Drug Association (PDA.org).

Course Name .1
Pharmaceutical Chemistry
Course Code .2
PHT213
Term/Year .3
Second semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Ghassan Jalal Aswad The email: ghasan-jalal@ntu.edu.iq
Course Objectives .8
☐ Studying modern drug design and methods of synthesizing and chemically modifying therapeutic compounds. Understanding the biometabolism of drugs within the body and their direct impact on efficacy and toxicity. ☐ Linking the subtle structural changes in the drug molecule to changes in its kinetic and dynamic properties.
Teaching and learning strategies .9
exercises for the synthesis, separation and modeling of pharmaceutical compounds within the pharmaceutical chemistry laboratory. ☐ Presentations in which students explain the stages of developing a particular drug, from the idea to its approval. • Using chemical and biological databases(such asPubChem) to search for drug structures and interactions.

Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
Tests and discussion	,Lecture ,discussion presentation	Antibiotics include penicillin, cephalosporins , chloramphenicol , tetracyclines , and . macrolides	Lecture and discussion	4	1
Tests and discussion	,Lecture ,discussion presentation	Antibiotics include penicillin, cephalosporins , chloramphenicol , tetracyclines , and . macrolides	Lecture and discussion	4	2
Tests and discussion	,Lecture ,discussion presentation	Drugs that affect the central nervous system Central nervous system depressant, central nervous system stimulant	Lecture and discussion	4	3
Tests and discussion	,Lecture ,discussion presentation	Drugs that affect the central nervous system Central nervous system depressant, central nervous system stimulant	Lecture and discussion	4	4
Tests and discussion	,Lecture ,discussion presentation	,Autonomic drugs ,cholinergic agents anticholinergic agents	Lecture and discussion	4	5
Tests and discussion	,Lecture ,discussion presentation	,Autonomic drugs ,cholinergic agents anticholinergic agents	Lecture and discussion	4	6
Tests and discussion	,Lecture ,discussion presentation	Diuretics, water -soluble and osmotic agents , and heterocyclic compounds	Lecture and discussion	4	7
Tests and discussion	,Lecture ,discussion presentation	Diuretics, water -soluble and osmotic agents , and heterocyclic compounds	Lecture and discussion	4	8
Tests and discussion	,Lecture ,discussion presentation	Medications for lowering and raising blood sugar	Lecture and discussion	4	9
Tests and discussion	,Lecture ,discussion presentation	Medications for lowering and raising blood sugar	Lecture and discussion	4	10

Tests and discussion	,Lecture ,discussion presentation	Vitamins, Water-soluble vitamin, fat-soluble vitamin	Lecture and discussion	4	11
Tests and discussion	,Lecture ,discussion presentation	Vitamins, Water-soluble vitamin, fat-soluble vitamin	Lecture and discussion	4	12
Tests and discussion	,Lecture ,discussion presentation	enzymes	Lecture and discussion	4	13
Tests and discussion	,Lecture ,discussion presentation	Sterol hormone , bile , salts, sex hormones adrenal cortex hormones	Lecture and discussion	4	14
Tests and discussion	,Lecture ,discussion presentation	,Sterol hormone , bile salts Sex hormones, adrenal cortex hormones	Lecture and discussion	4	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if (applicable	Foye's Principles of Medicinal Chemistry - David A. Williams.
Main references (sources)	Medicinal Chemistry: A Molecular and Biochemical Approach - Thomas Nogrady & Donald F. Weaver.
Recommended supporting books and references (scientific journals, reports...)	European Journal of Medicinal Chemistry, Bioorganic & Medicinal Chemistry Letters.
references , websites	ChEBI (Chemical Entities of Biological Interest), ChemSpider.

Course Name .1
pharmacology
Course Code .2
PHT214
Term/Year .3
Second semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Muhammad Khader Bayez email: mohammad@ntu.edu.iq
Objectives Course .8
☐ A deep and detailed understanding of the mechanisms of action of drugs on the various systems of the human body in both health and disease. ☐ Identifying the therapeutic indications, contraindications, and serious side effects of each drug group. ☐ Studying drug-drug and drug-food interactions to ensure the safe and effective use of treatments.
Teaching and learning strategies .9
☐ Problem-based learning(PBL) through discussion of complex disease scenarios requiring multiple medications. ☐ Using comparative tables and comprehensive mind maps to classify medications and facilitate their memorization. ☐ Computer simulation laboratories for monitoring the response of vital organs to different drugs.
Course Structure .10

Evaluati on	Teaching method	Unit/Topic Name	Required outputs	Hour s	Week
a test	,Lecture ,discussion presentation	Drugs act on Respiratory system, Bronchodilators, Antihistamine, Expectorants Anti-tussive,Cold preparation ----- ----- Practical: Dose-Response Relationship	Introduction to drugs that affect the respiratory system ----- : Practical aspect Dose-effect relationship	4	1
a test	,Lecture ,discussion presentation	Drugs that affect the gastrointestinal tract (GIT), Anti-ulcer Antacid Antidiarrheal, Laxative Anti-emetic Practical: Discussion	Introduction to Digestive System Medications practical aspect discussion	4	2
practical control	,Lecture ,discussion presentation	Diuretics, classification, mode of action ----- Practical: Seminar	Diuretics: Types and How They Work ----- practical aspect Introductory dialogue	4	3
a test	,Lecture ,discussion presentation	Cardiovascular Drugs Cardiac Glycosides, Vasodilators, Antianginal , Antiarrhythmic drugs Practical: pharmacokinetics concepts $t_{1/2}$, bioavailability	Cardiovascular drugs (Part One) practical aspect Pharmacokinetic concepts	4	4
a test	,Lecture ,discussion presentation	Antihypertensive drugs Drugs affect hemostasis , anticoagulant ----- Practical:	Cardiovascular drugs ((Part Two) ----- practical aspect	4	5

		Practical: Discussion	discussion		
practical control	,Lecture ,discussion presentation	Chemotherapy Antibiotic:Mechanism of action ----- Practical: Seminar	:Antibiotics Mechanism of Action ----- practical aspect Introductory dialogue	4	6
a test	,Lecture ,discussion presentation	Antibiotic: Inhibition of cell wall, cell membrane ----- Practical Dose calculation	Cell wall-active antibiotics ----- practical aspect Dose calculations	4	7
a test	,Lecture ,discussion presentation	Antibiotic: Inhibition of proteins, nucleic acid synthesis ----- Practical: Discussion	Antibiotics that inhibit the synthesis of proteins and nucleic acids ----- practical aspect discussion	4	8
practical control	,Lecture ,discussion presentation	Antiviral, Antifungal, Antiamebiasis , Antiparasitic, Anthelmintic, Antituberculosis and Disinfectan ----- Practical: Semina	Antimicrobials ----- practical aspect Introductory dialogue	4	9
practical control	,Lecture ,discussion presentation	General principle of Drugs interaction ----- Practical Drug interaction	General concepts of drug interaction ----- practical aspect Drug interaction	4	10
a test	,Lecture ,discussion presentation My presentation	Hormonal drugs: Insulin and Antidiabetic agents ----- Practical: Discussion	Anti-diabetic drugs ----- Practical aspect discussion	4	11

a test	,Lecture ,discussion presentation	-Adrenal steroids , Thyroid and antithyroid ----- Practical: Seminar	,Adrenal, thyroid and antithyroid drugs ----- practical aspect Introductory dialogue	4	12
practical control	,Lecture ,discussion an offer My presentation	- Anterior pituitary , Growth hormones , gonadotropin , sex hormones,,oxytocin Vasopressin Practical Nicotine poisoning	Pituitary ,hormones posterior sternal hormones, and sex hormones ----- :Practical aspect - Nicotine poisoning	4	13
practical control	,Lecture ,discussion presentation	Contraception Practical Practical: Discussion	Contraceptives ----- practical aspect discussion	4	14
a test	,Lecture ,discussion presentation	Poison and antidotes ----- Practical: Seminar	Poisoning and antidote ----- practical aspect Introductory dialogue	4	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Rang & Dale's Pharmacology - James M. Ritter et al. (Elsevier).
Main references (sources)	Basic & Clinical Pharmacology - Bertram G. Katzung & Anthony J. Trevor (McGraw-Hill).
Recommended supporting books and references (scientific journals, reports...)	British National Formulary (BNF), British Journal of Pharmacology.
references , websites	DailyMed (National Library of Medicine), BNF Online (bnf.nice.org.uk).

Course Name .1
drugs
Course Code .2
PHT215
Term/Year .3
Second semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 4 / Total number of units: 4
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Omid Mohsen Hassan email: Phomeedmuhsin@uokirkuk.edu.iq
Course Objectives .8
☐ Study the classification and sources of natural compounds with medical and therapeutic importance. ☐ Understand the approved scientific methods for preparing medical drugs and strategies to prevent the degradation of their components. ☐ Identify active chemical functional groups in pharmaceuticals.
Teaching and learning strategies .9
☐ Advanced laboratory experiments for separating active ingredients (such as steam distillation and chromatography. ☐ Examination of drug powders and plant tissues under a microscope to identify their distinctive anatomical characteristics. ☐ Preparing research projects or mini scientific posters on the chemical and biological evaluation of a particular medical drug.

Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
a test	,Lecture ,discussion presentation	Lipids : c. Definition of lipids d. Types of lipids .	:Fats .C. Definition of .Dr. Types of fats	4	1
a test	,Lecture ,discussion presentation	c.Comparison between fats, oils and waxes. d.Methods of preparation and isolation of lipids	C- Comparison between fats, fixed oils and waxes Methods of preparing and isolating lipids	4	2
a test	,Lecture ,discussion presentation	e.Example for each type of lipids and their pharmaceutical and medical uses	e- An example of each type of fat and its pharmaceutical and medical uses	4	3
a test	,Lecture ,discussion presentation	Resins and balsams: a. Definition of resins and balsams.	: Resins and balsams A. Definition of resins and balsams	4	4
a test	,Lecture ,discussion presentation	b. Plants containing resins and balsams.	b. Plants containing resins and balsams	4	5
a test	,Lecture ,discussion presentation	Tannins: a. Definition of tannins b. Their properties.	:Gallnuts .A. Definition of gallnuts b. Their characteristics.	4	6
a test	,Lecture ,discussion presentation	c. Classification of tannins.	C. Classification of gallnuts.	4	7
a test	,Lecture ,discussion presentation	d.Examples for drugs belong to each class of tannins.	Dr. Examples of medicines belonging to each class of tannins.	4	8
a test	theoretical	Chromatography: a. Definition. b. Uses. c. Phases d. Types of chromatography	:Chromatography .A. Definition. B .Uses. C. Stages D. Types of .Chromatography	4	9

a test	,Lecture ,discussion presentation	antibiotics: a. Definition of antibiotics. b. classification with examples each class c. Antituberculosis d. Antifungal antibiotics. e. Antihelmintics .	:Antibiotics A. Definition of antibiotics. B. Their classification with examples for each .category C. Anti-tuberculosis d. Antifungal .antibiotics. e Anti-worms.	4	10
a test	,Lecture ,discussion presentation	Hormonal drugs: a. Definition of glands. b. Definition of hormones. c. Types of hormones	:Hormonal medication A. Definition of .glands. B Definition of .hormones. C Types of .hormones	4	11
a test	,Lecture ,discussion presentation My presentation	d. Extraction of hormones from glands e. Storage of hormones f. Types of glands and hormones with their medical uses.	d. Extraction of hormones from glands e. Storage of hormones of glands and hormones and their medical uses.	4	12
a test	,Lecture ,discussion presentation	Vitamins: a. Definition of vitamins. b. Types of vitamins c. Examples for water soluble vitamins with their natural sources.	:Vitamins A. Definition of vitamins. B. Types .vitamins C. Examples of water-soluble vitamins and their natural sources.	4	13
a test	,Lecture ,discussion an offer My presentation	d.The uses of water soluble vitamins. e. Examples for fat soluble vitamins with their natural sources. f. Uses of fat soluble vitamins	d. Uses of water-soluble vitamins. e. Examples .fat-soluble vitamins With their natural sources. F. Uses of fat-soluble vitamins	4	14
a test	,Lecture ,discussion presentation	The poisonous plants: a. Their types. b. Examples of poisonous plants.	:Poisonous plants .A. Their types. B Examples of poisonous plants.	4	15

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Trease and Evans' Pharmacognosy - W.C. Evans (Elsevier).
Main references (sources)	Pharmacognosy: Fundamentals, Applications and Strategies - Simone Badal & Randolph Delgoda (Academic Press).
Recommended supporting books and references (scientific journals, reports...)	Planta Medica Journal, Fitoterapia Journal.
references , websites	Society for Medicinal Plant and Natural Product Research (ga-online.org).

Course Name .1
therapeutic applications
Course Code .2
PHT216
Term/Year .3
Second semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 3 / Total number of units: 3
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Zainab Khairallah Sadiq email: zainbsaleh77@ntu.edu.iq
Course Objectives .8
☐ Enabling the student to develop an integrated and personalized pharmaceutical care plan for each patient based on their condition(Individualized Therapy). ☐ Monitoring, evaluating, and resolving drug-related problems(DRPs) such as inappropriate dosages or adverse effects. Developing clinical communication skills and providing professionalpatient counseling to patients and their families.
Teaching and learning strategies .9
☐ Interactive and analytical discussion of real patient files obtained from hospital wards (Case-Based Learning). • Simulating the role of a clinical pharmacist through role-playing to communicate effectively with patients and doctors in the medical environment. • Practical workshops for analyzing and following up on the latest global medical practices and guidelines.

Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
a test	,Lecture ,discussion video presentation	Drugs acting on the GIT (Gastrointestinal Tract) System Antacids Anti- cholinergics	Introducing students to medications that affect the digestive system	3	1
practical control	,Lecture ,discussion video presentation	Drugs acting on the GIT (Gastrointestinal Tract) System H2 Antagonist Proton-Pump Inhibitors	Identifying Medications that Affect the - Digestive System Part 2	3	2
a test	,Lecture ,discussion video presentation	Drugs acting on the GIT (Gastrointestinal Tract) System Anti-diarrheal drugs Laxative Drugs	Identifying Medications that Affect the - Digestive System Part 3	3	3
a test	,Lecture ,discussion video presentation	Antispasmodics Antiemetic Nausea and Vomiting	Identifying Medications that Affect the - Digestive System Part 4	3	4
practical control	,Lecture ,discussion video presentation	(Diuretics) Osmotic Carbonic anhydrase inhibitor Loop	Identifying diuretic drugs	3	5
practical control	,Lecture ,discussion	(Diuretics) Part 2 Thiazide Potassium Sparing	Understanding - Diuretic Drugs Part Two	3	6

	video presentation				
practical control	,Lecture ,discussion video presentation	Drug act on the Respiratory System (Bronchodilator)	Identifying medications that affect the respiratory system	3	7
practical control	,Lecture ,discussion video presentation	Drug act on the Respiratory System)Anti-asthmatic drug)	Identifying Drugs Affecting the Respiratory System - Part Two	3	8
practical control	,Lecture ,discussion video presentation	Antiseptics And Disinfectants	Sanitizers and disinfectants	3	9
practical control	,Lecture ,discussion video presentation	Drug act on the Cardiovascular System)Anti-hypertensive drug (	Drugs that affect the cardiovascular system; blood pressure medications	3	10
practical control	,Lecture ,discussion video presentation	Drug act on the Cardiovascular System)Anti-anginal drug (	Drugs that affect the cardiovascular system; drugs for .angina	3	11
practical control	,Lecture ,discussion video presentation	Drug acting on the Cardiovascular System)Anti-arrhythmic Drugs (-tonic drugs	Drugs that affect the cardiovascular system; drugs for irregular heartbeat	3	12
practical control	,Lecture ,discussion video presentation	Antibiotics)Penicillin (	Antibiotics Part 1	3	13
practical control	,Lecture ,discussion video presentation	Antibiotics Cephalosporin	Antibiotics Part 2	3	14
practical control	,Lecture ,discussion video presentation	Antibacterial Drugs Sulfonamides + Cotrimoxazole	Antibiotics Part 3	3	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	Pharmacotherapy Handbook - Barbara G. Wells et al. (McGraw-Hill).
Main references (sources)	Clinical Pharmacy and Therapeutics - Cate Whittlesea & Karen Hodson (Elsevier).
Recommended supporting books and references (...scientific journals, reports)	Oxford Handbook of Clinical Pharmacy, American Journal of Health-System Pharmacy (AJHP).
references , websites	NICE Guidelines (nice.org.uk), Lexicomp Online.

Course Name .1
Community health
Course Code .2
PHT217
Term/Year .3
Second semester / Second year
Date this description was prepared .4
2025/9/10
Available attendance formats .5
In- person/ physical
Total study hours / Total number of units .6
Total number of study hours: 2 / Total number of units: 2
(Name of the course coordinator (if applicable) More than one name is mentioned .7
Name: Muhammad Hakim Khalaf email: mohammed93hakeem@ntu.edu.iq
Course Objectives .8
Understanding the principles of public health, epidemiology, and methods of preventing infectious and chronic diseases at the community level. ☐ Studying the environmental, social, and behavioral factors that affect the health of individuals and population groups. ☐ Enabling the student to design, manage, and evaluate awareness campaigns, health education, and vaccination programs.
Teaching and learning strategies .9
• Field visits or designing virtual awareness campaigns targeting specific health problems in the community. • Analyzing national and international health and epidemiological statistics to identify patterns of disease spread. • Discussion panels and brainstorming sessions on ways to improve primary health care and the role of the community pharmacist in it.

Course Structure .10

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
a test	,Lecture ,discussion video and film presentations	Family assessment	Assessing the state of the family and society	2	1
practical control	,Lecture ,discussion video and film presentations	Health education	Health education	2	2
a test	,Lecture ,discussion video and film presentations	Maternal and child health	Maternal and child care	2	3
a test	,Lecture ,discussion video and film presentations	School health	School health services	2	4
practical control	,Lecture ,discussion video and film presentations	Occupational health program.	Occupational health	2	5
practical control	,Lecture ,discussion video and film presentations	Epidemiology	Epidemiology	2	6
practical control	,Lecture ,discussion video and film presentations	Communicable diseases.	communicable diseases	2	7

practical control	,Lecture ,discussion video and film presentations	Primary health care.	Primary health care	2	8
practical control	,Lecture ,discussion video and film presentations	Environment .	the environment	2	9
practical control	,Lecture ,discussion video and film presentations	Healthy water	healthy water	2	10
practical control	,Lecture ,discussion video and film presentations	Air pollution.	Air pollution	2	11
practical control	,Lecture ,discussion video and film presentations	Waste	waste	2	12
practical control	,Lecture ,discussion video and film presentations	Healthy housing	Healthy housing	2	13
practical control	,Lecture ,discussion video and film presentations	Rural health.	Rural health	2	14
practical control	,Lecture ,discussion video and film presentations	Revision.	Review	2	15

Course Evaluation .11

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

Learning and teaching resources .12

Required textbooks (methodology, if applicable)	الصحة العامة وصحة المجتمع - د. أحمد عبد اللطيف إبراهيم
Main references (sources)	Maxcy-Rosenau-Last Public Health and Preventive Medicine - Robert B. Wallace.
Recommended supporting books and references (...scientific journals, reports)	Community Pharmacy: Symptoms, Diagnosis and Treatment - Paul Rutter, WHO Public Health Reports.
references , websites	WHO Community Health Portal, CDC Public Health Gateway.