Academic Program Description Form

University Name: Middle Technical University.

Faculty / Institute: Institute of Medical Technology – Al-Mansour.

Scientific Department: pharmacy techniques.

Academic or Professional Program Name: Analytical Chemistry

Final Certificate Name: Technical diploma in pharmacy

Academic System: semester system

Description Preparation Date: 4/3/2024

File Completion Date:

Signature:	**Signature:**
Head of Department Name: **Dr Hayder Merry**	**Scientific Associate Name:** **Sameerah Saadoon Mustafa**
Date:	**Date:**

The file is checked by:

Department of Quality Assurance and University Performance:

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the dean

1. Program Vision
Leadership and excellence in the field of technical education and scientific research. and concern to its quality to build a knowledge society.

2. Program Mission
To provide an educational and research environment conducive to education and creativity that will contribute to the preparation of highly qualified graduates, to achieve effective national and international scientific twinning, and to strengthen partnership with the sectors of society and international institutions in the relevant fields.

3. Program Objectives
Preparing qualified technical staff working in the field of pharmacy and pharmaceutical industries under the supervision of the pharmacist and working in the fields of reading Medical prescriptions, preparation and dispensing of medicine -1 He works in the field of medicine under the supervision of a pharmacist or -2 chemist in the preparation of medicines He works in drug stores and dispensaries in laboratories and drug stores, -3 where he is able to carry out all stages of storage, classification and arrangement

4. Program Accreditation
Medical

5. Program external influences
The graduate should be able to gain experience after graduation to work in his field of specialization and to have high confidence and knowledge in his

specialty to evaluate the performance personality by teamwork in his field of specialization

6. Program Structure				
Program Structure	**Number of Courses**	**Credit hours**	**percentage**	**Reviews***
Institution Requirements				
College Requirements		5	100%	
Department Requirements				
Summer Training				
Other				

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

7. Program Description				
Year /Level	**Course Code**	**Course Name**	**Credit Hours**	
			Theoretical	**Practical**
1		Analytical chemistry	2	3

8. Expected Learning Outcomes of the Program	
Knowledge	
A1- Understand the basic principles of general pharmacy specialization in general A2- Understand the scientific principles and basics of pharmacy A3- Learn the basics of drug dispensing, classification and education in the pharmacy A4- Identify the principles and basics of quality control methods during and production of medicines	A1- Understand the principles of chemistry, , A2- Understand how to prepare different types of solutions A3- Understand the basic principles of chemical reactions A4- Identify the chemical analysis and reactions.

Skills	
B1 - The student learns the basics of preparing medicines B2 - The student learns the laboratory tools and equipment that he deals with B3 - Evaluating the graduate's personality by performing laboratory work B4 - Preparing and dispensing medicines	B1-The student learns the basics of chemistry B2-The student learns the laboratory tools and equipment that he deals with B3-Evaluating the graduate's personality by performing laboratory work B4-Preparing and dispensing medicines
Ethics	
C1- The student should be able to deal with the equipment in the laboratory C2- That the student is qualified to complete his studies in his field of specialization	C1-The graduate should be able to gain experience after graduation C2-The graduate should be able to work in his field of specialization C3-The graduate should be able to have high confidence and knowledge in his specialty C4-The graduate should be able to evaluate the performance personality by teamwork in his field of specialization
	C 1- The graduate should be able to learn the basics of general chemistry C2- The graduate should be able to learn the basics of analytical chemistry.

9. Teaching and Learning Strategies
- Theoretical and electronic lectures - Labs - Systematic training - Summer training

10. Evaluation Methods

Daily assessment - theoretical electronic written tests - practical tests in the laboratory - final exams - discussion of graduation research

11.Faculty						
Faculty Members						
Academic Rank	**Specialization**		**Special Requirements / Skills (if applicable)**		**Number of the teaching staff**	
	General	**Special**			**Staff**	**Lecturer**
Lecturer		√			1	1

Professional Development
Mentoring new faculty members
Reduces the chances of them becoming unhappy, and develops quality contributors within the organization
Professional Development of faculty members
Scientific and recreational trips- -Participation in scientific debates between students in the specialty - Attending seminars - Participation in the calligraphy and drawing exhibition

12.Acceptance Criterion
Assessment of admission criteria through the central admission through the ministry's plan, according to the average and the type of branch in middle school, and this will be after an interview with the student at the institute

13.The most important sources of information about the program
-Vocabulary approved by the Deans Committee in the scientific specialization - method book -Teaching lectures from scientific sources and the Internet

14.Program Development plan
-Adding new topics to keep pace with the science development by reviewing the latest research published within the specialty -Developing scientific capacity through publishing scientific research within the specialty.

Program Skills Outline															
				Required Program Learning outcomes											
Year / Level	Course Code	Course Name	Basic or Optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
1		Analytical chemistry	basic	√	√	√	√	√	√	√	√	√	√	√	√

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

Course Description Form

1. Course Name:
Analytical chemistry
2. Course Code:
3. Semester / Year:
Semester
4. Description Preparation Date:
11-3-2024
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
5 hours (2 theoretical + 3 practical) / 5 units
7. Course administrators name (mention all, if more than one name)
Name:Hadeel Ahmed Hasan Email:hadeelahmed@mtu.edu.iq Name: Sameerah Saadoon Mustafa Email: samira_63@mtu.edu.iq Name:Raqad Salih Mahdee Email:raqadsalih@gmail.com
8. Course Objectives:

Course Objectives	Enable the students to understand the principles of chemistry, how to prepare different types of solutions, chemical analysis and reactions. Enable the students to understand the principles of chemistry, how to prepare different types of solutions, chemical analysis and reactions.

9. Teaching and Learning Strategies

Strategy	- Theoretical and electronic lectures - Labs - Systematic training - Summer training

10.Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or Subject name**	**Learning method**	**Evaluation method**
1			Classification of analytical chemistry.	Laboratory equipments, cleaning of vessels, chemical dangers and reactions of cations.	- Online theoretical written exams power point - Practical tests in the lab
2			Solutions, molecular weight, equivalent weight	Unknown (cations), reactions of anions.	- Online theoretical written exams power point - Practical tests in the lab
3			Reliabilityofanalytical data.	Unknown (anions),	- Online theoretical

				balance uses, preparation of percentage composition solution	written exams power point - Practical tests in the lab
4			Gravimetric analysis-volumetric analysis, concentration of solutions, molarity and normality	Preparation of solutions (molarity and normality).	- Online theoretical written exams power point - Practical tests in the lab
5			Preparation of solutions (molarity and normality).	Preparation of standard solution for iodine.	- Online theoretical written exams power point - Practical tests in the lab
6			Preparation (solutions of part per millions).	Unknown, discussion-reports.	- Online theoretical written exams power point - Practical tests in the lab
7			Examples: molarity, normality, percent strength).	Oxidation-reduction-reaction-titration of Kmno4 with oxalic acid.	- Online theoretical written exams power point

					- Practical tests in the lab
8			Standard solution, classification, preparation methods.	Determination of Cu% in solution.	- Online theoretical written exams power point - Practical tests in the lab
9			Neutralization reaction-titration of strong acid against strong base-oxidation-reduction-reaction.	Unknown + examination.	- Online theoretical written exams power point - Practical tests in the lab
10			Examples: volumetric analysis, chemical equilibrium, ionization constant of water.	Determination of PH of hair shampoo-titration of weak acid with weak base.	- Online theoretical written exams power point - Practical tests in the lab
11			PH-values (for strong and weak acid) and for (strong and weak base)	Buffer solution and determination its value by PH-meter.	- Online theoretical written exams power point - Practical tests in the lab

12			Buffer solutions, classification, properties, colorimetric analysis and its methods	Experiment about Buffer solution uses.	- Online theoretical written exams power point - Practical tests in the lab
13			Beer- limber's law-calibration curve.	Colorimetric analysis	- Online theoretical written exams power point - Practical tests in the lab
14			Fraction spectrum	Spectrophoto meter and determination the concentration of solutions by it.	- Online theoretical written exams power point - Practical tests in the lab
15			IR and UV radiation (discussion).	Unknown.	- Online theoretical written exams power point - Practical tests in the lab

11.Course Evaluation

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**الكيمياء التحليلية** **لطلبة المعهد الطبي الفني /الجزء النظري** **الدكتور هادي كاظم عوض** **م.ساجدة عبدالحميد**
Main references (sources)	1- Analytical Chemistry For Pharmacists Part-1 Dr.Niyazi A.S.Al-Arequipa 2- Analytical Chemistry For Medical Science Dr.Niyazi A.S.Al-Arequipa 3- Pharmaceutical Analyticl Chemistry-II Dr.Amal Badawy 4- Practical Pharmaceutical Analyticl Chemistry M.M.Alam Asif Husain
Recommended books and references (scientific journals, reports….)	Lieutenant and lectures prepared by the professor after the approval of the sectoral advisory
Electronic References, Websites	