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

Academic Program and Course Description Guide for the Chemistry Department

2024-2025

Introduction:

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

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

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

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

Concepts and terminology:

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

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

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

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

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

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

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

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

Academic Program Description Form

University Name: .....Tikrit.....

Faculty/Institute: . College of Education Pure Sciences .....

Scientific Department: .....Chemistry.....

Academic or Professional Program Name: ..... Chemistry...

Final Certificate Name: ..... Chemistry....

Academic System: .....

Description Preparation Date:

File Completion Date:

Signature:

Head of Department Name:

Date: 2025/1/27

Signature:

Scientific Associate Name:

Date: 27/1/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 27/1/2025

Signature:

Professor Doctor
ALI Abdul Majeed Shihab
College of Education
for Pure Sciences

Approval of the Dean

1. Program Vision

The Department of Chemistry seeks to achieve excellence and leadership in pure and applied chemistry through a comprehensive academic program that encompasses organic, inorganic, physical, analytical, and biochemistry. The program aims to keep pace with scientific and educational developments at both the local and global levels by enhancing the quality of academic and research performance.

The vision emphasizes preparing graduates with a solid foundation in chemistry, along with pedagogical and research skills that enable them to excel in teaching and work effectively in educational institutions. The Department also strives to foster innovation, research, and entrepreneurship among students, encouraging them to develop their own projects that expand career opportunities beyond traditional employment.

Furthermore, the vision of the Department is to provide a stimulating academic environment that supports continuous training and development for faculty and staff, while engaging students in scientific, laboratory, and extracurricular activities that enhance critical and creative thinking as well as communication and presentation skills. Through investment in research and innovation, the Department seeks to transform knowledge into added value that benefits society and consolidates its position as a leading academic institution.

2. Program Mission

The Department of Chemistry aims to prepare graduates with scientific thinking skills, analytical abilities, and the capacity to address and solve chemical problems using innovative approaches. It also ensures that students acquire a solid foundation across the theoretical and applied branches of chemistry, supported by modern teaching methods and advanced educational technologies at both undergraduate and graduate levels.

The mission emphasizes developing academic and practical skills that enable graduates to integrate effectively into the labor market and contribute to educational, industrial, health, and service sectors. The Department also promotes scientific research by encouraging graduate studies and building local and international partnerships with universities, research centers, and industry.

The program seeks to prepare future leaders capable of assuming responsibilities in education and research, contributing to the training of new

generations of distinguished teachers and researchers. The mission is realized through a supportive academic environment that fosters active learning, critical thinking, and applied scientific research, alongside high-quality programs aligned with international accreditation standards.
3. Program Objectives
1. Education and Teaching: Prepare graduates with creative and effective teaching skills, capable of contributing to the development of education at different levels. 2. Knowledge and Application: Enable students to apply chemical knowledge in analyzing real-world problems and providing innovative solutions. 3. Scientific Research: Strengthen students' abilities in research and development, and qualify them to pursue graduate studies in chemistry and related sciences. 4. Community Service: Provide the educational, industrial, and health sectors with qualified professionals who contribute to development and community service. 5. Professional Development: Enhance graduates' academic and practical skills to ensure their competitiveness and successful integration into the local and regional labor market.
4. Program Accreditation
Does the program have program accreditation? And from which agency?
5. Other external influences
Is there a sponsor for the program?

6 Program Structure				
Program Structure	Number of Courses	Credit hours	Percentage	Reviews•
Institution Requirements	11	22	%12	
College Requirements	12	46	%25	
Department Requirements	23	115	%63	183 Total Credit Hours
Summer Training				
Other	Classroom observation and teaching practice in schools.			

This can include notes whether the course is basic or option

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours		
			theoretical	practical	
First Stage	CHEM 121	Organic	2	2	6
	CHEM111	Analytical	2	2	6
	CHEM131	Inorganic	2	0	4
	BIO120	Life Sciences	1	2	4
	MAT105	Mathematics	1	0	2
	UOA137	Computers 1	1	0	2
	UOA137	Arabic Language	1	0	2
	UOA135	Human Rights and Democracy	1	0	2
	EPS102	Principles of Education and Teaching	1	0	2
	EPS101	Educational Developmental Psychology	2	0	4
	UOA140	English Language	1	0	2
	CHEM181	Chemical Safety and Security	1	0	2
			16	6	38
Second Stage	CHEM223	Organic	2	2	6
	CHEM213	Analytical	2	2	6
	CHEM233	Inorganic	2	2	6
	CHEM241	Physical	2	2	6
	MAT	Mathematics	1	0	2
	UOA241	Computer 2	1	0	2
	EPS201	Educational Leadership and Administration	2	0	4
	EPS202	Developmental Psychology	2	0	4
	UOA240	English Language	1	0	2

		Curricula and School Textbooks	1	2	4
		Teaching Thinking	1	0	0
		Crimes of the Defunct Ba'ath Party	1	0	2
			18	10	44
third Stage	CHEM325	Organic	2	2	6
	CHEM331	Coordination	2	2	6
	CHEM351	Biological	2	2	6
	CHEM341	Physical	2	2	6
	CHEM361	Industrial	2	0	4
	EL1100	Elective	2	0	4
	EPS211	Fundamentals of Scientific Research	2	0	4
	EPS312	Guidance and Mental Health	1	2	4
	EPS311	Teaching Methods	1	2	4
	UOA340	English	1	0	2
		Educational Technology and Its Applications	1	2	4
			18	14	50
fourth Stage	CHEM453	Biochemistry	2	0	4
	CHEM427	Organic Identification	2	3	7
	CHEM454	Quantum Chemistry and Spectroscopy	2	0	4
	CHEM415	Analytical Chemistry	2	2	6
	EL1200	Elective	2	0	4
	CHEM463	Industrial Chemistry	2	2	6
	EPS412	Practical Education	1	2	4
	EPS411	Measurement and Evaluation	2	0	4
	CHEM491	Research Project	2	0	4
		Action Research	1	2	4
	UOA440	English Language	1	0	2
			19	11	49
table for the summary of theoretical and		First Stage	16	6	38

practical credit hours		Second Stage	18	10	44
		Third Stage	18	14	50
		Fourth Stage	19	11	49
		Total Sum	72	65	183
		Percentage of Credit Hours from the Total	%53	%47	

8. Expected learning outcomes of the program

Knowledge

Learning Outcomes 1

The student is able to understand the various branches of chemistry. The program prepares chemistry teachers at levels that keep up with the ongoing developments.

Learning Outcomes Statement 1

1. Enabling the student to acquire theoretical knowledge in the field of chemistry.
2. Enabling the student to understand teaching methods and how to effectively convey scientific information to students.
3. Ensuring the student is familiar with measurement and evaluation techniques, as well as modern teaching methods in chemistry.
4. Allowing the student to access educational material electronically through virtual classrooms, in addition to providing them with knowledge of learning theories related to the age group of high school students.

Skills

Learning Outcomes 2

The student should acquire discussion skills and be able to reach conclusions.

Learning Outcomes Statement 2

1. Equip and enrich the student with laboratory work techniques.
2. Guide the student toward a scientific approach in solving all scientific problems.
3. Familiarize the student with the objectives and principles of the art of teaching chemistry.
4. Enable students to acquire the skills needed to use virtual classrooms effectively.

Values

Exams, daily assignments, discussions, laboratory reports, graduation projects.

1. Adopting a dialogue-based approach between the student and the professor.
2. Focusing on research projects and preparing well-organized reports.
3. Adopting a discussion-based approach (performance experiments and seminars).
4. Implementing e-learning to provide an engaging and flexible educational environment.

9. Teaching and Learning Strategies

1- The application method in research laboratories. 2- Adoption of purposeful and constructive dialogue and discussion. 3- Adoption of the trial and error method. 4- Adoption of multiple media in virtual

classrooms (image, text, sound, video).
10. Evaluation methods
1- Seminar research preparation (graduation project). 2- Adoption of a grading system as a basis for the evaluation process. 3- Adoption of testing methods. 4- Adoption of discussions and dialogues between students and professors. 5- Creation of an assessment task in virtual classrooms.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	**Lecturer**
Professor	chemistry	Organic			4	
Associate Professor	chemistry	Organic			2	
Lecturer	chemistry	Organic			2	
Assistant Lecturer	chemistry	Organic			3	
Professor Associate	chemistry	biochemistry			2	
Professor	chemistry	biochemistry			1	
Lecturer	chemistry	biochemistry			4	
Professor Associate	chemistry	Inorganic			1	
Professor	chemistry	Inorganic			3	
Lecturer	chemistry	Inorganic			1	
Professor	chemistry	Physical			1	
Lecturer	chemistry	Physical			2	
Associate Professor	chemistry	Analytical			2	
Lecturer	chemistry	Analytical			1	
Assistant Lecturer	chemistry	Analytical			2	
Associate Professor	chemistry	Industrial			1	
Associate Professor	Life Sciences Science	Microbiology			1	
Assistant Lecturer	Teaching Methods	Chemistry Teaching Methods			1	

Assistant Lecturer	English Language	Language			1	

Professional Development

Orientation for New Faculty Members

College Councils, Department Councils, Temporary and Permanent Committees, Training Courses

Professional Development for Faculty Members

1. Using up-to-date scientific sources.
2. Using fast communication networks to transfer information, such as the internet.
3. Visits and practical experiences in service laboratories.
4. Gaining scientific and modern skills in the field of modern technical communication.
5. Training courses, seminars, and specialized scientific workshops.

Admission Criteria

1. Admission based on the general and central average system.
2. Admission to departments based on the student's preference and GPA.
3. The requirement is for high school graduates, specifically from the scientific track.
4. The accepted student must be physically and mentally healthy, free from physical disabilities.

Key Sources of Information about the Program

1. Textbooks approved by the sectoral committee for colleges of education for pure sciences.
2. Supplementary books.
3. Historical books and resources / Sources in English.
4. Additional sources from the internet.
5. Training courses organized by the university on e-learning platforms.

Program Development Plan

1. Curriculum development.
2. Expanding the admission plan.
3. Using modern teaching methods.
4. Using modern educational tools.
5. Developing laboratories.

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
First stage	CHEM 121	Organic	Basic	*	*	*									
	CHEM111	Analytical	Basic	*	*	*									
	CHEM131	Inorganic	Basic	*	*	*									
	BIO120	Life Sciences	Basic	*	*	*									
	MAT105	Mathematics	Basic	*	*	*									
	UOA137	Computers 1	Basic												
	UOA137	Arabic Language	Basic		*										
	UOA135	Human Rights and Democracy	Basic		*										
	EPS102	Principles of Education and Teaching	Basic		*										
	EPS101	Educational Developmental Psychology	Basic		*										
	UOA140	English Language	Basic		*										
	CHEM181	Chemical Safety and Security	Basic		*										
second stage	CHEM223	Organic	Basic	*	*	*									
	CHEM213	Analytical	Basic	*	*	*									

	CHEM233	Inorganic	Basic	*	*	*									
	CHEM241	Physical	Basic	*	*	*									
	MAT	Mathematics	Basic												
	UOA241	Computer 2	Basic		*										
	EPS201	Educational Leadership and Administration	Basic		*										
	EPS202	Developmental Psychology	Basic		*										
	UOA240	English Language	Basic		*										
		Curricula and School Textbooks	Basic		*										
		Teaching Thinking	Basic		*										
		Crimes of the Defunct Ba'ath Party	Basic		*										
third stage	CHEM325	Organic	Basic	*	*	*									
	CHEM331	Coordination	Basic	*	*	*									
	CHEM351	Biological	Basic	*	*	*									
	CHEM341	Physical	Basic												
	CHEM361	Industrial	Basic		*										
	EL1100	Elective	Basic		*										
	EPS211	Fundamentals of Scientific Research	Basic		*										
	EPS312	Guidance and Mental Health	Basic		*										
	EPS311	Teaching Methods	Basic		*										
	UOA340	English	Basic		*										

		Educational Technology and Its Applications	Basic	*	*	*									
Fourth stage	CHEM453	Biochemistry	Basic	*	*	*									
	CHEM427	Organic Identification	Basic	*	*	*									
	CHEM454	Quantum Chemistry and Spectroscopy	Basic		*										
	CHEM415	Analytical Chemistry	Basic	*	*	*									
	EL1200	Elective	Basic		*										
	CHEM463	Industrial Chemistry	Basic		*										
	EPS412	Practical Education	Basic	*	*	*									
	EPS411	Measurement and Evaluation	Basic		*										
	CHEM491	Research Project	Basic	*	*	*									
		Action Research	Basic	*	*	*									
	UOA440	English Language	Basic	*	*	*									

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

Academic Program Description Form

University Name: .....Tikrit.....

Faculty/Institute: . College of Education Pure Sciences .....

Scientific Department: .....Chemistry.....

Academic or Professional Program Name: ..... Chemistry...

Final Certificate Name: ..... Chemistry....

Academic System: .....

Description Preparation Date:

File Completion Date:

Signature:

Head of Department Name: nadhem

Date: 2025/1/27

Signature:

Scientific Associate Name: mohamed

Date: 27/1/2025

The file is checked by: muamar.a.kamil

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 27/1/2025

Signature:

Professor Doctor
ALI Abdul Majeed Shihab
College of Education
for Pure Sciences

Approval of the Dean

Course Description Form

1. Course Name:
Organic chemistry
2. Course Code:
3. Semester / Year:
year
4. Description Preparation Date:
7/1/2025
5. Available Attendance Forms:
attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
2
7. Course administrator's name (mention all, if more than one name)
Email:ayad sulaiman@tu .edu.iq
8. Course Objectives

Course Objectives / learning,sense and experiment	• • •

9. Teaching and Learning Strategies	
Strategy	lectures

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
carbone	2	Chem. teacher	Organic chem.	lecture	test
alkanes . synthesis	2	=	=	=	=
reactions	2	=	=	=	=
	=	=	=	=	=

alkenes			=	=	=
synthesis	=	=			
reactions	=	=	=	=	=
alkynes	=	=	=	=	=
synthesis	=	=	=	=	=
reactions	=	=	=	=	=
benzene	=	=	=	=	=
synthesis	=	=	=	=	=
reactions	=	=	=	=	=
functional groups.	=	=	=	=	=

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

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name: Inorganic Chemistry / First Year
2. Course Code:
3. Semester / Year: Annual
4. Description Preparation Date: 2024/2025
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total) : 4
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Ahmed Abdul-Sattar Irzoqi Email: ahmedirzoqi@tu.edu.iq
8. Course Objectives

Course Objectives	**Increase knowledge about the subject. Analyze and synthesized elements of knowledge with prior understanding**

9. Teaching and Learning Strategies	
Strategy	

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	2	Understand, analyze, and apply the topic	Electronic Structure of the Atom	Lecture	Exam
2.	2	Understand, analyze, and apply the topic	Electronic Structure of the Atom	Lecture	Exam
3.	2	Understand, analyze, and apply the topic	Electronic Structure of the Atom	Lecture	Exam
4.	2	Understand, analyze, and apply the topic	Electronic Structure of the Atom	Lecture	Exam
5.	2	Understand, analyze, and apply the topic	Electronic Structure of the Atom	Lecture	Exam
6.	2	Understand, analyze, and apply the topic	Electronic Structure of the Atom	Lecture	Exam
7.	2	Understand, analyze, and apply the topic	Electronic Structure of the Atom	Lecture	Exam
8.	2	Understand, analyze, and apply the topic	Periodic Properties of Atoms	Lecture	Exam
9.	2	Understand, analyze, and apply the topic	Periodic Properties of Atoms	Lecture	Exam
10.	2	Understand, analyze, and apply the topic	Periodic Properties of Atoms	Lecture	Exam
11.	2	Understand, analyze, and apply the topic	Ionic Bond	Lecture	Exam
12.	2	Understand, analyze, and apply the topic	Ionic Bond	Lecture	Exam
13.	2	Understand, analyze, and apply the topic	Ionic Bond	Lecture	Exam
14.	2	Understand, analyze, and apply the topic	Introduction to Covalent Molecule Structures	Lecture	Exam

15.	2	Understand, analyze, and apply the topic	Introduction to Covalent Molecule Structures	Lecture	Exam
16.	2	Understand, analyze, and apply the topic	Introduction to Covalent Molecule Structures	Lecture	Exam
17.	2	Understand, analyze, and apply the topic	Introduction to Covalent Molecule Structures	Lecture	Exam
18.	2	Understand, analyze, and apply the topic	Introduction to Covalent Molecule Structures	Lecture	Exam
19.	2	Understand, analyze, and apply the topic	Introduction to Covalent Molecule Structures	Lecture	Exam
20.	2	Understand, analyze, and apply the topic	Introduction to Covalent Molecule Structures	Lecture	Exam
21.	2	Understand, analyze, and apply the topic	Introduction to Molecular Orbital Formation	Lecture	Exam
22.	2	Understand, analyze, and apply the topic	Introduction to Molecular Orbital Formation	Lecture	Exam
23.	2	Understand, analyze, and apply the topic	Introduction to Molecular Orbital Formation	Lecture	Exam
24.	2	Understand, analyze, and apply the topic	Introduction to Molecular Orbital Formation	Lecture	Exam
25.	2	Understand, analyze, and apply the topic	Introduction to Molecular Orbital Formation	Lecture	Exam
26.	2	Understand, analyze, and apply the topic	Nuclear Changes and Radioactive Series	Lecture	Exam
27.	2	Understand, analyze, and apply the topic	Nuclear Changes and	Lecture	Exam

			Radioactive Series		
28.	2	Understand, analyze, and apply the topic	Nuclear Changes and Radioactive Series	Lecture	Exam
29.	2	Understand, analyze, and apply the topic	Unit Systems	Lecture	Exam
30.	2	Understand, analyze, and apply the topic	Unit Systems	Lecture	Exam
31.	2	Understand, analyze, and apply the topic	Unit Systems	Lecture	Exam
32.	2	Understand, analyze, and apply the topic	Unit Systems	Lecture	Exam

11. Course Evaluation

25 marks for the first semester exams, 25 marks for the second semester exams, and 50 marks for the final exam.

12. Learning and Teaching Resources

Required textbooks (curricular books, if a	1. *Inorganic Chemistry* (Part One) by Dr. Nouman Al-Na'imi and his team. 2. *Radiation Chemistry* by Dr. Munther Janabi and Dr. Saadiya Al-Hashimi.
Main references (sources)	1. *Modern Inorganic Chemistry* (Part One) by Dr. Basim Mohammed Al-Saadi. 2. *Nuclear and Radiation Chemistry* by Dr. Anis Al-Rawi.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Analytical chemistry
2. Course Code:
3. Semester / Year:

Year
4. Description Preparation Date:
6-1-2025
5. Available Attendance Forms:
In presence
6. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical hours + 6 practical hours, number of units 7
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Omar Adnan Hashem Email: omarblesh@tu.edu.iq
8. Course Objectives

Course Objectives	• Learn to prepare concentrated solutions • He is able to complete the process of titration solutions • Learns to solve mathematical problems using different laws
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures, practical application, electronic lectures, daily exams, monthly exams.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1 ,2	**2 Theoretical 6 practical**	Analyze, apply, understand	Introduction to analytical chemistry	lecture	Daily and monthly examinations
3, 4	**2 Theoretical 6 practical**	Analyze, apply, understand	Acids , Based and salts	lecture	Daily and monthly examinations
5, 6	**2 Theoretical 6 practical**	Analyze, apply, understand	Methods of expressing concentrations	lecture	Daily and monthly examinations
7, 8	**2 Theoretical 6 practical**	Analyze, apply, understand	Preparation of solutions	lecture	Daily and monthly examinations
9, 10	**2 Theoretical 6 practical**	Analyze, apply, understand	Laws for expressing concentration for solids and liquids	lecture	Daily and monthly examinations
11 , 12	**2 Theoretical 6 practical**	Analyze, apply, understand	Dilution ratio of solutions	lecture	Daily and monthly examinations
13, 14	**2 Theoretical 6 practical**	Analyze, apply, understand	Volumetric analysis	lecture	Daily and monthly examinations

15, 16	2 Theoretical 6 practical	Analyze, apply, understand	Standard solutions and their types	lecture	Daily and monthly examinations
17, 18	2 Theoretical 6 practical	Analyze, apply, understand	Titrations	lecture	Daily and monthly examinations
19 , 20	2 Theoretical 6 practical	Analyze, apply, understand	Indicator used in corrections	lecture	Daily and monthly examinations
21 ,22	2 Theoretical 6 practical	Analyze, apply, understand	Types of titrations and their applications	lecture	Daily and monthly examinations

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

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1- Volumetric and gravimetric analytical chemistry: written by Hadi Awad. 2- Analytical Chemistry - Skoog 3- Descriptive and volumetric analysis: written by Dr. Thabet Saeed Al-Ghabsha, Dr. Muayyad Qasim Al-Abaiji
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Basics of education
2. Course Code:
....
3. Semester / Year:
annual \ **2024-2-21**
4. Description Preparation Date:
My presence
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours theory Number of units 4
7. Course administrator's name (mention all, if more than one name)
Name:Tahseen Khalid Matne Email: tahseen.khalid@tu.edu.iq

8. Course Objectives

Course Objectives	• Learn the foundations of education • Get to know the oldest civilization • Understand the philosophers' opinions on education • Distinguish between education before Islam and after Islam

9. Teaching and Learning Strategies

Strategy	theoretical lectures, electronic lectures, daily exams, monthly exams.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	2 hours theory	Analyze, apply, understand	The concept of education	Lecture Discussion	Daily and monthly exams
Week 2	2 hours theory	Analyze, apply, understand	Principles of education	Lecture	Daily and monthly exams
					Daily and monthly exams
Week 3	2 hours theory	Analyze, apply, understand	Objectives of education	Discussion	Daily and monthly exams
Week 4	2 hours theory	Analyze, apply, understand	Education in primitive societies	Lecture	Daily and monthly exams
Week 5	2 hours theory	Analyze, apply, understand	Education in ancient civilizations	Discussion	Daily and monthly exams
Week 6	2 hours theory	Analyze, apply, understand	Education in Mesopotamia	Lecture	Daily and monthly exams
Week 7	2 hours theory	Analyze, apply, understand	Chinese education	Discussion	Daily and monthly exams
Week 8	2 hours theory	Analyze, apply, understand	Spartan education	Lecture	Daily and monthly exams
Week 9	2 hours theory	Analyze, apply, understand	Ethnic education	Discussion	Daily and monthly exams
Week 10	2 hours theory	Analyze, apply, understand	Education of girls	Lecture	Daily and monthly exams
Week 11	2 hours theory	Analyze, apply, understand	Pre-Islamic education	Discussion	Daily and monthly exams
Week 12	2 hours theory	Analyze, apply, understand	Education in Islam	Lecture	Daily and monthly exams

Week 13	2 hours theory	Analyze, apply, understand	Philosophers	Discussion	Daily and monthly exams
Week 14	2 hours theory	Analyze, apply, understand	Education in the Middle Ages	Lecture	Daily and monthly exams
Week 15	2 hours theory	Analyze, apply, understand	Sophists	Discussion	Daily and monthly exams
Week 16	2 hours theory	Analyze, apply, understand	Education in the modern era	Lecture	Daily and monthly exams
Week 17	2 hours theory	Analyze, apply, understand	Chinese school	Discussion	Daily and monthly exams
Week 18	2 hours theory	Analyze, apply, understand	The concept of education	Lecture	Daily and monthly exams
Week 19	2 hours theory	Analyze, apply, understand	Principles of education	Discussion	Daily and monthly exams
Week 20	2 hours theory	Analyze, apply, understand	Objectives of education	Lecture	Daily and monthly exams

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .....etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course name
General Arabic
2. Course code
3. Semester/Year
quarterly
4. Date this description was prepared
20-1-2025
5. Available forms of attendance
My presence
6. Number of study hours (total) / Number of units (total)
2 hours and 2 units
7. Name of the course supervisor (if more than one name is mentioned)
Name: Baidaa Mohie Rman Email:
8. Course objectives

• Helping students to read and write correctly and obtaining student outcomes targeted learning • Recognizing the importance of the Arabic language and its relationship to guidance, diagnosis, classification and research Scientific • Learn about scientific foundations and scientific specifications and how to apply them to scientific materials. For study	Subject objectives

9. Teaching and learning strategies

1. Activating the learner's role in educational situations 2. Encouraging learners to generate creative ideas about a specific topic, by searching for correct answers, or possible solutions to the issues presented. On them	Strategy

10. Course Structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Watches	The week
Written and oral tests	The casting	Surah Al-Fatihah			**the first**
		Surah Al-Fajr			**the second**
		Hamza (connected, disconnected, medial and extended)			**the third**
		punctuation marks			**Fourth**
		Monthly exam			**Fifth**
		Exchange balance			**Sixth**
		Correct and defective verb			**Seventh**
		Parts of speech			**The eighth**

		Monthly exam			**Ninth**
		Types of news			**tenth**
		Kan and her sisters			**eleventh**
		Verb-like letters			**twelfth**
		number			**thirteenth**
					fourteenth
					fifteenth

11. Course Evaluation	
The grade is distributed out of 100 according to the tasks assigned to the student, such as daily preparation and exams. Daily, oral, monthly, written, reports, etc.the chapterFirst 25And the chapterSecond 25 and final exam 50	
12. Learning and teaching resources	
A set of resources approved by the Ministry	Required textbooks (methodology if any)
	Main References (Sources)
	Recommended supporting books and references (scientific journals, reports...)
	Electronic references, websites

Course Description Form

Instructor Name: Asst. Prof. Dr. Shaymaa Naji Dahham

Course Description: Contemporary Theoretical Biology

The course description was prepared according to the terms approved by the sectoral body of the colleges of education in all universities of the country within the topics of the first stage of the life sciences departments. It represents a necessary summary of the most important characteristics of the course and the learning outcomes expected from the student to achieve, proving whether he has achieved maximum benefit from the available learning opportunities. It must be linked to the program description

1. Educational institution	Tikrit University - College of Education for Pure Sciences
2. Academic department/center	Chemistry Department
3. Course name/code	Contemporary Biology
4. Available forms of attendance	Attendance is mandatory
5. Semester/year	Annual 2024-2025
6. Number of study hours (total)	60 hours
7. Date this description was prepared	5/1/2025

10.Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives: 1- Students' ability to use the microscope and know its types and most important parts. 2- Study models of animal and plant cells and identify their shapes, types and methods of division. 3- Students' ability to distinguish and cognitively perceive in diagnosing models of different cells fixed on glass slides.

4- Introducing students to modern techniques and devices used in dissecting different types of invertebrates and vertebrates such as frogs. -5- The student should be able to study the structure and organs of plants through sections of the root, stem and leaf 6- The student should be able to use different laboratory devices and tools
B - Course specific skill objectives: 1 - The student should be able to prepare practical and theoretical research in contemporary biology 2 - The student should be able to know the scientific facts related to biology and the method of diagnosing slides related to animal and plant cells 3 - The student should be able to discover information by himself 4 - To learn to use laboratory equipment and diagnostic methods
Teaching and learning methods
Lecture or discussion with students by stimulating discussion and exchanging opinions through discussion between the professor and the students and between the students themselves, as well as using modern means of presentation such as Data Show and other appropriate educational means.
Evaluation methods
Oral questions within the lecture Short daily exams (surprise exam(Monthly exam and reporting.
C- Emotional and value-based objectives 1- Working to encourage students to express their opinions on modern scientific trends. 2- Working to create a spirit of interaction among students within the classroom. 3- Guiding the student by the teacher to acquire scientific information 4- Developing the student's ability to dialogue and scientific discussion
Teaching and learning methods
1- Use electronic means of clarification. 2- Use the discussion method in the lecture between the professor and the

students3- Assign students to do research and reports 4- Assign students the homework related to the scientific material.
Evaluation methods
Personal assessment (daily short exams(Oral questions during lectures. Monthly exam and reporting.
D- General and transferable skills (other skills related to employability and personal development). 1- Gaining self-confidence by conducting experiments 2- Enhancing emotional skills by creating a spirit of competition among students 3- Students should have a spirit of cooperation and work as a team 4- Students should have a deep understanding of animal histology and its types .

10.Course Structure:

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
first	4	Suitable organis for biology studie	Introduction: Historical review of the growth of biology	Lecture	Quizzes
Second	4	Understand basic principles	The importance of biology, branches of biology	Lecture	Quizzes
Third	4	Understand the basic principles	Qualities of life, definition of qualities of life	Lecture	Quizzes
Fourth	4	Understand the basic principles	The main method of building living matter	Lecture	Quizzes
Fifth	4	Understand the basic principles	Classification of living things, historical stages, classification systems	Problem solving	Homework
Sixth	4	Understand the basic	Principles of classification of plants and animals	Lecture	Quiz , Preparing reports

		principles			and homework
Seventh	4	Understand the basic principl	Gender concept	Problem solving	Homework
Eighth	4	Understand The basic principles	Reproduction and growth, reproduction and growth in plants	Lecture	Quiz , preparing reports and homework
Ninth	4	Understand The basic principles	Reproduction and growth in animals	Problem solving	Homework
Tenth	4	Understand The basic principles	Hormonal coordination, coordination in animals	Lecture	Quiz , preparing reports and homework
Eleventh	4	Understand The basic principles	Coordination in plants	Problem solving	Quiz , preparing report and Homework
Twelfth	4	Understand The basic principl	Evolution, Theories of Evolution, Lamarckism, Rotationism	Problem solving	Homework
Thirteen	4	Understand The basic principles	Evolution of low-lying animals	Lecture	Quiz , preparing reports and homework
Fourteenth	4	Understand The basic principl	Vertebrate evolution	Problem solving	Homework
Fifteenth	1	Semester exam		-	-
Sixteenth	4	Understand The basic principles	Biological behavior, nervous system and behavior, innate behavior and learning	Lecture	Quiz , preparing reports and homework
Seventeenth	4	Understand The basic principles	Orientation in time and space, mass movement and migration	Lecture	Quiz , preparing reports and homework
Eighteenth	4	Understand	Monotony and life	Lecture	Quiz

		The basic Principles	clock, hierarchical dominance in animal groups, examples of animal behavior		
Nineteenth	4	Understand The basic principles	Ecology, some concepts of ecology	Lecture	Quiz
Twentieth	4	Understand The basic principles	Ecosystem	Lecture	Quiz
Twenty-first	4	Understand The basic principles	Biogeochemical courses	Lecture	Homework
Twenty-second	4	Understand The basic principles	Energy flow	Lecture	Homework
Twenty third	4	Understand The basic principles	Food chain	Lecture	Quiz
Twenty fourth	4	Understand The basic principles	food web	Lecture	Quiz
Twenty-fifth	4	Understand The basic principles	Aquatic and terrestrial biomes	Lecture	Homework
Twenty-sixth	1	-	Semester exa	-	-

11.Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ..... etc	
12.Learning and Teaching Resources	
Required textbo (curricular books, if any)	Biology / Prof. Dr. Hussein Ali Al-Saadi, Asst. Prof. Dr. Huss Abdel-Moneim Daoud, Asst. Dr. Taleb Awidi Al-Khazarji, A Prof. Dr. Najm Shlimon Korkis
Main references (sources)	For the Kingdom of Plants, Dr. Hussein Al-Arousi Biology Peter H. Raven et al noor-book.com/mc3rks The world of non-flowering plants, K-Smith General Zoology, Zuhair Ibrahim Fattouh and Na Suleiman Korkis,

Recommended books and references (scientific journals, reports...)	Zoology For B.Sc. Students Semester V: Paper 2, Diversity Chordates and Comparative Anatomy | Lab on Virtual Dissecti Anatomy, Economic Zoology and Parasitology | NEP 2020 Ut Pradesh Plant groups, Dr. Samir Khalaf, Life ,P.D ,Gaffin and B.parker Cell biology ,Verms ,P.S and K.V,Agarwal
Electronic Referenc Websites	Science 1,2 ,Cambridge university ,https://byjus.com/biology/zoology/ https://ar.wikipedia.org/wiki/%D8%B9%D9%84%D 9%85_%D8%A7%D9%84%D9%86%D8%A8%D8%A7%D8%

13. Curriculum Development Plan
The curriculum should be more comprehensive and the interest in biology should be broader because it is linked to the stages of development and emergence of living organisms and the differences between animal and plant cells, as well as preparing modern editions with modern and valuable scientific sources to keep pace with modern science in this field

Course Description Form

1. Course Name:
English language
2. Course Code:
None
3. Semester / Year:
Year
4. Description Preparation Date:
25\1\2025
5. Available Attendance Forms:
Physical - Electronic - Integrated
6. Number of Credit Hours (Total) / Number of Units (Total)
30 \ 60

7. Course administrator's name (mention all, if more than one name)	
Assitstant Teacher : Omer Ahmed Dahham ahmeddahham87@gmail.com	
8. Course Objectives	
Course Objectives	A- Teaching students the English language and all its skills. B- Preparing a competent physical education teacher proficient in using a secondary language. C- Preparing a student capable of understanding the English language and its skills. D- Developing students' level and raising their awareness of the importance of language in both elementary and advanced stages. E- Investing in the English language subject theoretically and practically to enhance the educational level.
9. Teaching and Learning Strategies	
Strategy	1. Active Learning. 2. Cooperative Learning. 3. Brainstorming. 4. Free and Guided Discussions. 5. Task Analysis.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit/Topic	Teaching Method	Assessment Method
1	2	General Tenses	Unit 1	Collaborative Learning	Oral
2	2	Forming Questions - Introduction	Unit 1	Collaborative Learning	Oral
3	2	Present Tenses - Introduction	Unit 2	Collaborative Learning	Oral
4	2	Past Tenses - Introduction	Unit 3	Discussion Circles	Oral
5	2	Time and Date	Unit 3	Collaborative	Oral

				Learning	
6	2	Quantities	Unit 4	Collaborative Learning	Oral
7	2	Written Exam	Written Exam	Written Exam	Written Exam
8	2	Future Tense	Unit 5	Collaborative Learning	Oral
9	2	Comparison and Preference	Unit 6	Collaborative Learning	Oral
10	2	Directions	Unit 6	Collaborative Learning	Oral
11	2	Present Perfect	Unit 7	Collaborative Learning	Oral
12	2	Conditions	Unit 7	Collaborative Learning	Oral
13	2	Short Answers	Unit 7	Collaborative Learning	Oral
14	2	Written Exam	Written Exam	Written Exam	Written Exam
15	2	Additional Rules	Unit 8	Collaborative Learning	Oral
16	2	Imperative Verbs	Unit 8	Collaborative Learning	Oral
17	2	Sentence Construction	Unit 9	Collaborative Learning	Oral
18	2	Adjectives and exclamation Phrases	Unit 10	Collaborative Learning	Oral
19	2	Passive Voice	Unit 11	Collaborative Learning	Oral
20	2	First Conditional Sentence	Unit 11	Collaborative Learning	Oral
21	2	Written Exam	Written Exam	Written Exam	Written Exam
22	2	Second Conditional Sentence	Unit 11	Collaborative Learning	Oral
23	2	Continuous Future Tense	Unit 12	Collaborative Learning	Oral
24	2	Reported Speech	Unit 13	Collaborative Learning	Oral
25	2	Comprehension	Unit 14	Collaborative Learning	Short Reports
26	2	Irregular Verbs	-	Collaborative	Oral

				Learning	
27	2	Common Words	-	Collaborative Learning	Oral
28	2	Written Exam	Written Exam	Written Exam	Written Exam
29	2	Social Terms	-	Collaborative Learning	Oral
30	2	Common Mistakes	-	Collaborative Learning	Oral

11- Course Evaluation
Grading for the Semester - First Semester (theoretical 25%) - Second Semester (theoretical 25%) - Midterm Assessment: 50% Final Exam - theoretical (50%) Additional Information
12 - Sources
"New Headway Beginners" by Liz and John Soars "A Step Up To English & Sport Sciences" by Ass.Prof. Anasam Yaroub Khayoun, Ass. Prof. Miada Zuhair, and Prof. Yaroub Khayoun

Course Description Form

1. Course Name: Safety in chemical laboratories
2. Course Code:
3. Semester / Year: Year
4. Description Preparation Date:2024/2/21
5. Available Attendance Forms: presence

6. Number of Credit Hours (2) / Number of Units (2)
7. Course administrator's name (mention all, if more than one name)
Name: A.M.M Shaima Hatem Abdullah Email: shaymaahatam@tu.edu.iq

8. Course Objectives

Course Objectives	• Work safely in the laboratory • Responding to emergency situations • Use safety equipment correctly

9. Teaching and Learning Strategies

Strategy	Theoretical lectures Daily and monthly exams

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name		Learning method
The first week	2	Analysis,understanding	Culture and laboratory safety	lecture	Daily and monthly examinations
The second week and third week	2	Analysis,understanding	Establishing an effective system for safe and sound chemical management	lecture	Daily and mo
The fourth week and fifth week	2	Analysis,understanding	Emergency planning	Lecture	Daily and monthly
The sixth week and seventh week	2	Analysis,understanding	Implementing safety and security rules, programs and policies	Lecture	Daily and monthly
The eighth week and ninth week	2	Analysis,understanding	Laboratory capabilities	Lecture	
Week ten and week eleven	2	Analysis,understanding	Laboratory safety		
The twelfth week and thirteenth week	2	Analysis,understanding	Assess risks and hazards within the laboratory	Lecture	Daily and monthly
The fourteenth week and fifteenth week	2	Analysis,understanding	Chemicals management	Lecture	Daily and monthly
The sixteenth week and seventeenth week	2	Analysis,understanding			
The eighteenth and nineteenth week	2	Analysis,understanding			Daily and monthly
The twentieth week	2	Analysis,understanding			

	2 2	Analysis,understanding Analysis,understanding Analysis,understanding Analysis,understanding Analysis,understanding	Working with chemicals Working using laboratory equipment Chemical waste management	Lecture Lecture lecture	Daily and monthly Daily and monthly Daily and monthly Daily and monthly

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

Chemical Laboratory Security and Safety: A Guide to Prudent Chemical Management
Lisa Moran and Tina Masciangio

11. Course Evaluation

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description

Form

1. Course Name:	
Mathematics	
2. Course Code:	
3. Semester / Year:	
2024/2025	
4. Description Preparation Date:	
1/10/2024	
5. Available Attendance Forms:	
Attendance Study	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours/ 60 hours	
7. Course administrator's name (mention all, if more than one name)	
Name: Muayaad Mahmood Khalil Email: medomath80@tu.edu.iq	
8. Course Objectives	
Course Objectives	● Cognitive objectives: Which through it , the student is able to : 1. Understand the course topics and related mathematical problems. 2. Remember the information and laws given in the course 3. Analyze the question text and organize the information to utilize it in solving and obtaining correct results. ● Skill objectives: Which through it , the student is able to: 1. Apply what he has learned in solving mathematical problems. 2. Construct problems related to the course topics and then arrive at correct solutions. 3. Use the appropriate laws to solve each problem. 4. Be able to link between topics that can be connected within the course content. ● Affective Objectives: wherein the student possesses: 1. An interest in the instructor's explanation of the course material 2. Sufficient conviction of the importance of the

	material he receives. **3.** Readiness to cooperate with others in solving mathematical problems. 4. The ability to interact and discuss with his peers or professor to solve a specific issue.

9. Teaching and Learning Strategies

Strategy	The following strategies are followed: 1- Teaching using the discussion method between the student and the instructor to support viewpoints. 2- Learning through brainstorming among students. 3- Collaborative learning by assigning students to prepare reports on course topics. 4- Teaching using the one-minute paper technique, like competitions to foster enthusiasm among students. 5- Learning by making the student as a teacher to enhance his selfconfidence. 6- Learning through daily and monthly attendance examinations. 7- Learning using problem-solving strategy.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Knowledge	The Subsets of the set of the real numbers	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
2	2	Knowledge	The Intervals The Types of The Intervals The Finite Intervals The Infinite Intervals	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
3	2	Knowledge	The Inequalities & Types The Inequalities Of The First Degree The Inequalities Of The Second Degree	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
4	2	Knowledge	The Absolute Value**&** The Properties Of The Absolute Value with The Solution Of The Inequalities Which Includes The Absolute Value	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions

5	2	Knowledge	The Functions	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
6	2	Knowledge	The Algebra of the function	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
7	2	Knowledge	Compose on Function	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
8	2	Knowledge	The Special Functions (The Trigonometric Functions, The Logarithm Function, The Exponential Function).	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
9	2	Knowledge	The Periodic Functions	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
10	2	Knowledge	The Right Limit The Left Limit	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions

11	2	Knowledge	The Properties Of the Limits	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
12	2	Knowledge	The Finite Limits The Infinite Limits	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
13	2	Knowledge	The Continuity	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
14	2	Knowledge	The Properties of the Continuity	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
15	2	Knowledge	The Differentiation	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
16	2	Knowledge	The Vertical Line	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
17	2	Knowledge	The Properties Of The Differentiation	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions

18	2	Knowledge	The Chain Rule	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
19	2	Knowledge	The Differentiation Implicit	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
20	2	Knowledge	The Mean Value Theorem	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
21	2	Knowledge	The Roll's Theorem	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
22	2	Knowledge	The Second Third Derivatives	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
23	2	Knowledge	The Differentiation of the Special Functions	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
24	2	Knowledge	The Differentiation of the Trigonometric Functions	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions

25	2	Knowledge	The Integration	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
26	2	Knowledge	The Properties Of The Integration	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
27	2	Knowledge	The Integration Of the trigonometric functions	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions
28	2	Knowledge	Some methods of integration	Use the white board And Display Screen. Use the Electronic tutorial	Monthly and Daily Exam Oral questions

11.Course Evaluation

A- The annual pursuit mark is (50) marks, divided as follows:
1- The monthly written exam is (40) marks
2- The daily written exams are (5) marks
3- Daily preparation, oral exams, and reports are (5) marks
B- The final exam score is (50) marks
Total (100) marks

12.Learning and Teaching Resources

- انتفاضم وانتكامم انجزء الأول، سوحي إتشاهيم انخطية، داس انمسيشج نهطثاعح وانشش، 2014. - انتفاضم وانتكامم انجزء انثاوي، سوحي إتشاهيم انخطية، داس انمسيشج نهطثاعح وانشش، 2015. - مقذمح في انشياضياخ انجامعيح، سمضان محمد جهيمح، داس انكتاب انجذيذ انمتحذج، 2013.

Thomas' Calculus Early Transcendentals Thirteenth Editionm George B. Thomas, Jr., 2014.

13.Main references (sources)

Methodological books for the Department of Mathematics for the second and third Stages in the college of the education, Calculus and Integration

Electronic References, Websites https://ar.wikipedia.org/wiki/%D8%AA%D9%81%D8%A7%D8%B6%D9%84_%D9%88%D8%AA%D9%83%D8%A7%D9%85%D9%84

Course Description Form

Course name: Human Rights, Children and Democracy .1						
:Course code .2HR106						
Semester/Year: 2023/2024 .3						
2023/10/10 :f preparation of this descriptionDate o .4						
person classes-Available forms of attendance: in .5						
Number of study hours (total) / Number of units (total): 60 / 2 .6						
(Name of the course supervisor (if more than one name is mentioned .7						
: Email aleb Naji AlwanT .Name: Mtalib.na@tu.edu.iq						
Course objectives .8						
• Teaching students the basics of human rights, children's rights and .democracy • skills 'Focus on developing students through reading, writing and .speaking • Gain teaching skills through political .principles and theories	Subject objectives					
Teaching and learning strategies .9						
• Preparing a student education plan across the four stages • Knowing the students' academic valuating their test resultslevel by e	Strategy					
Course Structure .10						
Evaluation metho	**Learning method**	**Name of the unit or topic**	**Required learning outcomes**	**Watches**	**the date**	**The week**

d						
-In person tests	-In person lectures	Human rights in Greek and Egyptian civilizations	The contributions of the thinkers of these two civilizations in the field of human rights and their great contributions in this field cannot .be denied	2	11/13/2023	1.
-In person tests	-In person lectures	Human rights in ancient Iraqi civilizations	The beginning of interest in human rights dates back to ancient civilizations that paid great attention to human .rights	2	2023/14/11	2.
-In person tests	-In person lectures	Human rights in divine laws and religions	It is no exaggeration to n was say that ma the focus of all religions and heavenly laws, but rather he was their goal, as they came to secure the .interests of people	2	2023/20/11	3.
-In person tests	-In person lectures	Human rights in Judaism and Christianity	Both religions are and divine laws messages that focus on human rights and basic .freedoms	2	2023/21/11	4.
-In person tests	-In person lectures	Human rights in Islam	Human rights under Islam have honored man and given him preference over other creatures, early and have cl shown the essential and important rights that man must .enjoy	2	2023/28/11	5.
-In person tests	-In person lecture	Human rights sources	Human rights and freedoms have received a degree	2	2023/29/11	6.

	s		of attention and care, whether at the level of national laws or .charters			
-In person tests	-In on pers lectures	International sources of human rights	The main source of human rights ideas in the world is the Universal Declaration of Human Rights issued by the .United Nations	2	2023/12/4	7.
-In person tests	-In person lectures	International Covenants on Human Rights	As the United Nations continued its tireless efforts in the field of human rights, the International Covenant on Civil and Political Rights, and the International Covenant on Economic, Social and Cultural .sRight	2	2023/5/12	8.
-nl person tests	-In person lectures	National Resources	We must not neglect national sources and their importance in establishing many principles of human rights and .freedoms	2	2023/12/11	9.
-In person tests	-In person lectures	French Declaration of ts of the Righ Man and of the Citizen 1789	There is no doubt that the French Declaration of the Rights of Man and of the Citizen is characterized by a humanitarian character, and it has caused a tremendous uproar throughout the .world	2	2023/12/12	10.
-In perso	-In person	Constitutions and declarations	The French Constituent	2	2023/18/12	11.

n tests	lectures	that followed the Declaration of Rights of 1789	Assembly issued an independent declaration of rights two years before it issued a constitution for the .revolution			
-In person tests	-In person lectures	Constitution of the Republic of Iraq 2005	The Constitution affirms that Iraqis are equal before the law without discrimination based on gender, race, nationality, .sect or belief	2	2023/19/12	12.
-In soper n tests	-In person lectures	Constitutional and judicial guarantees	Constitutional or judicial guarantees represent one of the basic means of protecting human rights and .freedoms	2	2023/26/12	13.
-In person tests	-In on pers lectures	Human rights guarantees in Islam	Human rights guarantees in Islam are more effective than previous guarantees because they are linked to two punishments, one of which is worldly and the other is an afterlife .punishment	2	2023/27/12	14.
-In person tests	-In person lectures	Human rights guarantees at the international level	International concern is a relatively recent issue. After disasters, wars, war crimes and the genocide of the human race, it has become extremely important to members of the international .community	2	2024/1/1	15.
-nl	-In	United Nations	The Charter of the	2	2024/1/15	16.

perso n tests	person lecture s	Charter	United Nations is the first multilateral international treaty in the history of international .relations			
-In perso n tests	-In person lecture s	United Nations General Assembly	The Assembly is the main and broad body that includes all member states .equally	2	2024/1/16	17.
-In perso n tests	-In person lecture s	Economic and Social Council	The Council is among the United Nations bodies that have given extensive attention .to human rights	2	2024/22/1	18.
-In perso n tests	-In person lecture s	an Rights Hum Council	The Council is considered one of the international bodies guaranteeing human rights and is an alternative to the Human Rights .Commission	2	2024/23/1	19.
-In perso n tests	-In person lecture s	The role of regional organizations in protecting human rights	Regional organizations have significant contributions to the preservation of individual rights .and freedoms	2	2024/29/1	20.
-In perso n tests	-In person lecture s	European Convention on Human Rights	The European Convention derives its provisions from the general objectives of the European Council, including strengthening ties and relations between member .states	2	2024/1/30	21.
-In perso n tests	-In person lecture	American Convention on man RightsHu	The American agreement followed the	2	2024/2/5	22.

	s		European agreement in terms of rights, with the exception of freedom of opinion and expression, which made it unique from other international and regional .agreements			
-In person tests	-In person lectures	Political parties and human rights	The political party is a phenomenon whose emergence is linked to the holding of elections. The party's function is summarized in performing the tasks for which it is known, as it forms an ent independ opinion regarding .public affairs	2	2024/2/6	23.
-In person tests	-In person lectures	Children's rights among ancient nations and civilizations	The child suffered what he suffered during ancient civilizations from the difficulties of living and the harsh living conditions that were the reason for not giving the child and his rights the care and attention he .deserved	2	2024/2/12	24.
-In person tests	-In person lectures	Children's rights Islam in	Islamic law has given great attention to the his child and rights, and Islam has provided a package of rights and guarantees	2	2024/2/13	25.

			that will provide him with a happy .life			
-In person tests	-In person lectures	Children's Rights in the 1989 International Convention	The disasters and calamities caused by wars that affected all of manity, hu especially children and women, prompted the international community to establish international rules that protect .children's rights	2	2024/2/19	26.
-In person tests	-In person lectures	The concept of democracy (its - (development -Definition Dimensions	t of The concep democracy is one of the most controversial concepts and terms, although it is not a new .concept	2	2024/2/20	27.
-In person tests	-In person lectures	Forms of) democracy -semi -direct -direct (amentaryparli	Democracy is the political system nder which public u affairs are managed. The people may exercise powers themselves, delegate them to their representatives, or delegate some of them to their representatives while keeping some for .themselves	2	2024/26/2	28.
-In person tests	-In person relectus	Pillars of the representative system	The representative system is characterised by its four pillars: an elected parliament, a fixed term for parliament, a	2	2024/27/2	29.

			member of parliament representing the nation, and the independence of .parliament			
-In person tests	-In person lectures	Representative parliamentary)) system mechanism: election	The natural result of the representative idea is election, which is the democratic method of .choosing rulers	2	2024/3/5	30.

luationCourse Eva .11	
The grade is distributed out of 100 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	
1. n Rights, Children and Huma Democracy, a group of authors, Dar . Atik-Al	(Required textbooks (methodology if any
1. Human Rights , Hamid Hanoun . Sanhouri-Khaled, Dar Al 2. -Human Rights, Hafez Alwan Al .Sanhouri House-Dulaimi, Al	(Main References (Sources
	Recommended supporting books and (...ntific journals, reportsreferences (scie
	Electronic references, websites

Academic Program Description
Second stage course
Developmental Psychology

This course description provides a concise summary of the main features of cted of the student, the course and the learning outcomes expe demonstrating whether the student has made the most of the learning . opportunities available. It must be linked to the programme description

For Humanities

Ministry of Higher Education and Scientific Tikrit University / Research	Educational institution
College of Education for Pure Sciences / Department of Chemistry	Scientific Department / Center
developmental psychology	Name of academic or professional program
Chemistry -Bachelor	Final Certificate Name
annual	:Academic system Courses / Other / Annual
	Accredited Certification Program
	Other external influences
0202 – 0202	Description preparation date
Academic Program Objectives	
Providing the student with insight into the concept of developmental psychology, -1 . ance and goalsits import	
The student's ability to identify the growth requirements at each developmental -2 .stage	
The student should distinguish between the theories of cognitive, psychological -3 . and social development	
portance of adolescence as a critical stage in The student should realize the im -4	

.growth, its problems, ways to treat it, and its characteristics
.The student acquires abilities and skills in developmental psychology -5

.dsRequired program outcomes, teaching, learning and assessment metho
Cognitive objectives Providing the student with the basic knowledge, concepts and information of -A1 .developmental psychology The student should become familiar with the general principles and laws of -A2 .human development ing light on the developmental characteristics of each Understanding and shedd -A3 .stage of growth, from childhood through adolescence, youth and old age Understanding and comprehending the theories that explain all aspects of -A4 .personal, social, and moral ,growth: physical, psychological, mental, emotional The student acquires knowledge of genetic and environmental factors affecting -A5 .growth
Program specific skill objectives -B The student should be able to understand the characteristics of developmental - B1 .the scientific material psychology for The student should be able to acquire the skill of applying moral, cognitive and - B2 .social theories solving skills -The student should be able to develop developmental problem - B3 .ng for themwithin the stages of growth and methods of cari
Teaching and learning methods
.(The inductive method (lecture- .(Discussion method (educational dialogue- .The method of educational groups in taking turns in discussion- , Preparing, preparing and using modern scientific techniques-PowerPoint .
Evaluation methods
up, -Formative assessment (daily exams , class discussion, homework and follow- .(class assessment, educational applications, discussion groups, periodic tests of success Diagnostic assessment (semester and final exams to issue judgments- (and failure

.Emotional and value goals -C
.Encouraging the student to use developmental psychology methods -A1
.To apply the principles of developmental psychology -A2
gative Developing the student's ability to distinguish between positive and ne -A3
.social upbringing methods within each stage of development
to appreciate the feelings and emotions of Developing the student's ability -A4
.others and how to control them in a positive way

Teaching and learning methods

al teaching methods, because they are value objectives do not depend on tradition
:that cannot be taught like cognitive objectives, so they depend on
Overcoming some problems during childhood, adolescence and youth, and how -1
.to choose a partner and work
ory of good values and sound moral and social Forming a general categ -2
.development
Providing psychological motivation to achieve emotional goals of growth and -3
.development
Growth is an individual process, meaning that each person grows in a unique -4
.way

Evaluation methods

Affective goals are not assessed through traditional tests, but rather rely on observing the student's behavior, interviewing them, discussing them, and following up on their relationship with the educational environment, which provides a cumulative recor.d of their representation of affective and value goals

General and transferable skills (other skills related to employability and personal -D
.(development
.Scientific dialogue and discussion skills -D1
documentation and ,Modern technology skills in communications -D2
.communication with scientific institutions and centers
.Teamwork skills, especially in scientific research -D3
Skills in solving educational problems using educational and psychological -D4
.programs and methods

methods Teaching and learning

Adopting the electronic class viaGoogle Meeting . .Inductive (deductive) method .Problem solving method He repeated the training courses and seminars to provide female students with the n fruitful dialogue, and ability to communicate with society, the ability to engage i .solve educational problems using scientific methods Classroom interaction and exchange of opinions between the student and the teacher .to raise learning difficulties and discuss their solutions .s to studentsUsing PowerPoint to present lecture
Evaluation methods
.Oral and written tests, individual and group, theoretical and practical Direct observation of the student's performance in the areas of dialogue, intellectual e classroom and the college and scientific communication, and teamwork within th .and university environment Assigning students to prepare scientific research to test their ability to think, draw .conclusions and solve problems .Periodic tests-

11.Planning for personal development
unication through seminars, conferences and joint work Scientific comm - .with qualified cadres in similar specializations Reviewing international studies in similar departments, to develop the - . ability to research and solve scientific problems dern scientific experiences and skills in the Engaging in acquiring mo - .field of modern technical communication
12.(Admission Criteria (Setting regulations for admission to a college or institute
Admission to the college follows the central distribution system adopted - istry of Higher Education and Scientific Research according to by the Min the admission form for Iraqi universities and institutes and by balancing .between the student's desire and the total he obtained ical As for admission to the Department of Educational and Psycholog Sciences, it is subject to a competitive exam, with a balance between the

.student's desire for the sixth grade in secondary school
13.The most important sources of information about the program
s in similar The program link on the Internet, and its application - .universities Training courses held by the University Quality and Performance - .Departments on the program in various institutes and colleges in Iraq

Course Description Form

1. Course Name: Foundations of organic chemistry
2. Course Code:
3. Semester / Year:Year
4. Description Preparation Date:2024/2/21
5. Available Attendance Forms: Attendance
6. Number of Credit Hours (8) / Number of Units (8)
7. Course administrator's name (mention all, if more than one name)
Name: M.M Bushra Abdel-Murtah Khairallah Email:bushra. chem@tu.edu. iq .....
8. Course Objectives

Course Objectives	• Helping students comprehend, comprehend, and obtain the basic rule in organic chemistry • He is able to distinguish between hydrocarbons, their preparation methods, their interactions, their applications, and their interactions • Learn how to name hydrocarbons and their derivatives • Discussing the physical and chemical

	properties and important functional groups of these compounds and distinguishing between them

9. Teaching and Learning Strategies	
Strategy	Theoretical lectures Daily and monthly exams

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**E m**

first week	2 theoretical 6 practical	Analyze, apply, understand	Bonding, properties of molecules, chemical and structural formulas	lecture	Daily and monthly examinations
second week	2 theoretical 6 practical	Analyze, apply, understand	Classification of organic compounds	lecture	
third week	2 theoretical 6 practical	Analyze, apply, understand	Resonance, its rules and active intermediates		
fourth week	2 theoretical 6 practical	Analyze, apply, understand	For hydrocarbons and their aliphatic and auratic types	lecture	
The fifth week and sixth week	2 theoretical 6 practical	Analyze, apply, understand	Alkanes, their names, types, and structural forms	lecture	
The seventh week	2 theoretical 6 practical	Analyze, apply, understand	Stereostructures in alkanes		
The eighth week	2 theoretical 6 practical	Analyze, apply, understand	Preparation of alkanes	lecture	Daily and monthly examinations
The ninth week	2 theoretical 6 practical	Analyze, apply, understand	Physical properties of alkanes	lecture	
The tenth week	2 theoretical 6 practical	Analyze, apply, understand	Chemical properties and their interactions		
The eleventh week	2 theoretical 6 practical	Analyze, apply, understand	Freons and alkanes reactions	lecture	
The twelfth week	2 theoretical 6 practical	Analyze, apply, understand	Unsaturated aliphatic hydrocarbons	lecture	
The thirteenth week	2 theoretical 6 practical	Analyze, apply, understand	E,Z naming system and regular and common naming	lecture	Daily and

The fourteenth week	2 theoretical 6 practical	Analyze, apply, understand	Preparation of alkenes	re	monthly examinations Daily and monthly examinations
The fifteenth week	2 theoretical 6 practical	Analyze, apply, understand	Physical properties and stability of alkenes	lecture	
The sixteenth week	2 theoretical 6 practical	Analyze, apply, understand	Alkene reactions		
The seventeenth week	2 theoretical 6 practical	Analyze, apply, understand	Alkynes (systematic and common nomenclature)	lecture	
The eighteenth week	2 theoretical 6 practical	Analyze, apply, understand	Preparation of alkynes	lecture	
The nineteenth week	2 theoretical 6 practical	Analyze, apply, understand	Alkyne reactions		
The twentieth week	2 theoretical 6 practical	Analyze, apply, understand	Aromatic hydrocarbons	lecture	
			Aromatic terms (benzen)	lecture	
				lecture	
				lecture	
				lecture	
				lecture	

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					Daily and monthly examinations Daily and monthly examinations Daily

					and monthly examinations Daily and monthly examinations Daily and month

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					ion s Dai ly and mo nth ly exa mi nat ion s Dai ly and mo nth ly exa mi nat ion s Dai

					ly and monthly examinations Daily and monthly examinations

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

11. Course Evaluation

Modern organic chemistry. Dr.. Adel Jarrar, first edition (2002)/Dar Oya for Printing and Publishing – Tripoli

2-General Chemistry. Frederick Longo. Translator. Jordan Publications.

(1981)/Jordanian Arabic Language Academy.

3-Foundations of organic chemistry. Dr. Wael Ghaleb Muhammad and Walid Muhammad Al-Saiti, first edition (2008)/Benghazi.

12. References (scientific journals, reports...)

Electronic References, Websites

Course Description Form

1. Course name

Practical analytical chemistry
2. Course code
3. Semester/Year
Academic year 2023-2024
4. Date this description was prepared
2025.1.26
5. Available forms of attendance
Live attendance in classrooms
6. Number of study hours (total) / Number of units (total)
8 hours of practical work / 4 units
7. Name of the course supervisor (if more than one name is mentioned)
lecturer Zeina Tarek Khattab lecturer rahma Abdul Hamid Hassan
8. Course objectives

Providing students with general information about analytical chemistry. -1 Introducing students to methods of expressing concentrations and giving laws -2 Explaining to students how to deal with chemicals and tools -3	Explaining to students how to prepare solid and liquid solutions. -4 Introducing students to the correction process and how it is carried out in the lab -5

	in the laboratory
9. Teaching and learning strategies	
	Introducing the student to laboratory techniques in analytical chemistry. -1 Introducing the student to methods of preparing laboratory chemicals. -2 Introducing the student to the hazards of chemicals and laboratory materials. -3

10. Course Structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Watches	The week
Exams, homework, lab reports, scientific research	My presence			90hour	30 weeks

11. Course Evaluation

The grade is distributed out of 100 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	
Practical Analytical -1 Chemistry by Hadi Kazim Practical Analytical -2 Chemistry by John H. Kennedy	Required textbooks (methodology if any)
4-Harris DC "Quantitative chemical analysis", 6th Ed. Freeman and Company, New York, 2003 5-Gary D. Christian, Purnendu K. Sgupta, Kevin A. Schug, Analytical Chemistry, 7th Edition, 2013	Main References (Sources)
	Recommended supporting books and references (scientific journals, reports...) .....
	Electronic references, websites

Course Description Form

1. Course Name:
Advanced biology (Practical)
2. Course Code:
3. Semester / Year:
2024-2025
4. Description Preparation Date:
21-1-2025

5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours-6 units (4 +2 units)
7. Course administrator's name (mention all, if more than one name)
Name: Iman Nazhan Mahdi Email:: eman.nazhan@tu.edu.iq

8. Course Objectives	
Course Objectives	• This course aims to provide the student with comprehensive information about contemporary biology • Learn about the light microscope and how to use it in practical experiments • Teach the student laboratory methods in examining animal and plant cell models • Learn about the types of modern classification used in classifying living organisms and methods of identifying them from the general shape and vital function performed by the living organism • Teach the student modern methods in writing practical laboratory reports and using laboratory equipment, which gives the student the possibility of use after graduation • Focus on the outputs of the College of Education for Pure Sciences to graduate a generation that can occupy teaching positions in the Ministry of Higher Education and the Ministry of Education

9. Teaching and Learning Strategies	
Strategy	1- Method of delivering lectures through modern educational means. Using modern technology by displaying explanatory slides of scientific models in addition to scientific videos, via display screens 2- Giving practical lectures based on laboratory equipment 3- Preparing scientific reports

	4 -Field visits to scientific laboratories 5 -Opening the way for scientific discussions for students to increase comprehension and expand understanding using interactive lectures Dialogue and discussion Brainstorming

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	Understand the topic of the lecture	General instructions, laboratory supplies and tools, drawing method	In person	Classroom performance and exams
Second	2	Understand the topic of the lecture	Compound microscope and its structure, microscope care and how to use it, cell	In person	Classroom performance and exams
Third	2	Understand the topic of the lecture	Study of plant cell models, cell shapes, cell division, types of divisions and their roles	In person	Classroom performance and exams
Fourth	2	Understand the topic of the lecture	Examine animal and plant cell models, understand the lecture topic, explain the stages	In person	Classroom performance and exams
Fivth	2	Understand the topic of the lecture	Different divisions of tissues.	In person	Classroom performance and exams

Sixth	2	exam	Exam	In person	Classroom performance and exams
Seventh	2	Understand the topic of the lecture	Study of different types of animal tissues	In person	Classroom performance and exams
Eighth	2	Understand the topic of the lecture	Sections, different animal tissues	In person	Classroom performance and exams
Ninth	2	Understand the topic of the lecture	Classification of living things	In person	Classroom performance and exams
Ten	2	Understand the topic of the lecture	Study of living models in different kingdoms	In person	Classroom performance and exams
eleven	2	Exam		In person	Classroom performance and exams
twelve	2	Understand the topic of the lecture	Learn about invertebrate anatomy	In person	Classroom performance and exams

Thirteen	2	Understand the topic of the lecture	Dissection model of insects	In person	Classroom performance and exams
Fourteen	2	Understand the topic of the lecture	And identify all the insect body systems	In person	Classroom performance and exams
Fifteen	2	Understand the topic of the lecture	Identify the different groups of chordates.	In person	Classroom performance and exams
Sixteen	2	Understand the topic of the lecture	Chordate characteristics	In person	Classroom performance and exams
Seventeen	2	Exam	Exam	In person	Classroom performance and exams
Eighteen	2	Understand the topic of the lecture	Frog anatomy	In person	Classroom performance and exams
Nineteen	2	Understand the topic of the lecture	Learn about the internal organs of the frog	In person	Classroom performance and exams

Twenty	2	Understand the topic of the lecture	Study of plant structure and organs	In person	Classroom performance and exams
Twenty one	2	Understand the topic of the lecture	Root section study	In person	Classroom performance and exams
Twenty two	2	Understand the topic of the lecture	cross section study of leg	In person	Classroom performance and exams
Twenty three	2	Understand the topic of the lecture	Study a section of the paper	In person	Classroom performance and exams
Twenty Four	2	Exam	Exam	In person	Classroom performance and exams

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

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name: Computer I
2. Course Code: Bachelor's
3. Semester / Year: 2024 /2025
.....
4. Description Preparation Date: 3/09/2024
5. Available Attendance Forms: Daily
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours
7. Course administrator's name (mention all, if more than one name)
Name: Ali Mahmood Khalaf Email: ali.mahmood@tu.edu.iq Name : Abrar Yaqdan Ismael Email: abrar.y.Ismael@tu.edu.iq
8. Course Objectives

Course Objectives	• The student acquires knowledge about computer principles and office applications. • The student acquires sufficient knowledge about computer basics • The student acquires sufficient knowledge about the classification of operating systems Windows 7, 8, 10

	• The student acquires sufficient knowledge about the components of the desktop, the start menu and the taskbar. • The student acquires sufficient knowledge about files and folders.

9. Teaching and Learning Strategies

Strategy	• Managing the lecture in a practical manner related to the reality of daily life to attract the student to the subject of the lesson without straying from the core of the subject so that the material is flexible and capable of being understood and analyzed. • Allocating a percentage of the grade for daily assignments and tests.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	2	Cognitive	Desktop Components	Lecture	General questions and discussion
2.	2	Cognitive	Start Menu	Lecture	General questions and discussion
3.	2	Cognitive	Taskbar	Lecture	General questions and discussion
4.	2	Cognitive	Search for files and programs on the computer	Lecture	General questions and discussion
5.	2	Cognitive	Turn on and restart the computer	Lecture	General questions and discussion
6.	2	Cognitive	Arrange windows in (pages, horizontal, vertical)	Lecture	General questions and discussion
7.	2	Cognitive	What is the Task Manager option	Lecture	General questions and discussion
8.	2	Cognitive	Attach the taskbar in its location	Lecture	General questions and discussion
9.	2	Cognitive	Make taskbar icons small	Lecture	General questions and discussion

10.	2	Cognitive	Hide the taskbar	Lecture	General questions and discussion
11.	2	Cognitive	Student evaluation (monthly exam)	-	-
12.	2	Cognitive	Methods for creating a new file in Windows 7 / changing the location of the taskbar	Lecture	General questions and discussion
13.	2	Cognitive	Control the size of windows	Lecture	General questions and discussion
14.	2	Cognitive	Methods for closing an open file or folder window	Lecture	General questions and discussion
15.	2	Cognitive	View the files in a file	Lecture	General questions and discussion
16.	2	Cognitive	Methods for renaming a file or folder	Lecture	General questions and discussion
17.	2	Cognitive	Delete a file permanently and permanently	Lecture	General questions and discussion
18.	2	Cognitive	Methods for copying and pasting files in Windows 7	Lecture	General questions and discussion
19.	2	Cognitive	Methods for copying and pasting files in Windows 7	Lecture	General questions and discussion
20.	2	Cognitive	Student evaluation (monthly exam)	-	-
21.	2	Cognitive	Methods for restoring a deleted file	Lecture	General questions and discussion

22.	2	Cognitive	Create a shortcut icon	Lecture	General questions and discussion
23.	2	Cognitive	How to change the desktop background	Lecture	General questions and discussion
24.	2	Cognitive	How to activate the screen saver	Lecture	General questions and discussion
25.	2	Cognitive	Student evaluation (monthly exam)	-	-
26.	2	Cognitive	Change the time and date in Windows 7	Lecture	General questions and discussion
27.	2	Cognitive	How to add a language to the computer	Lecture	General questions and discussion
28.	2	Cognitive	Change the mouse pointer on the computer	Lecture	General questions and discussion
29.	2	Cognitive	How to add an account and add a user image Student evaluation	Lecture	General questions and discussion
30.	2	Cognitive	(monthly exam)	-	-

11. Course Evaluation	
Daily exams score: 10 marks , homework and reports score: 10, monthly exams score: 30 marks, final exam score: 50 marks	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Reference:

Computer Fundamentals and Office Applications
Part One

Assistant Professor Ziad Mohammed Abboud, Professor Ghassan Hamid Abdul Majeed, Assistant Professor Amir Hussein, and Eng. B

Course Description Form

1. Course Name:
Thermodynamics
2. Course Code:
ASA
3. Semester / Year:
annual
4. Description Preparation Date:
19-1-2025
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours- 4unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Ahmed Saleh Yaseen Email: ahmed.s.yaseen@tu.edu.iq
8. Course Objectives

Course Objectives	• Learners gain experience in preparing scientific research ..... • ..... • .....

9. Teaching and Learning Strategies	
Strategy	Theoretical lectures, monthly exams

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
The first and second week	2theoretical	Analyze, apply, understand	Ideal and real gas	ecture	Daily and monthly exams

The third and fourth week	2theoretical	Analyze, apply, understand	Van der Waals equation and phase diagram	lecture	Daily and monthly exams
The fifth and sixth week	2theoretical	Analyze, apply, understand	Triple point and critical point, coefficient of volume expansion, coefficient of compressibility	lecture	Daily and monthly exams
The seventh and eighth weeks	2theoretical	Analyze, apply, understand	coefficient of volume expansion, coefficient of compressibility	lecture	Daily and monthly exams
The ninth and tenth weeks	2theoretical	Analyze, apply, understand	Applications of Thermodynamics, Basic Concepts in Thermodynamics	lecture	Daily and monthly exams
The eleventh and twelfth weeks	2theoretical	Analyze, apply, understand	Thermodynamic processes, calories	lecture	Daily and monthly exams
The thirteenth and fourteenth weeks	2theoretical	Analyze, apply, understand	Work	lecture	Daily and monthly exams
The fifteenth and sixteenth weeks	2theoretical	Analyze, apply, understand	State functions, exact differentials, sign rule in thermodynamics	lecture	Daily and monthly exams
The seventeenth and eighteenth weeks	2theoretical	Analyze, apply, understand	The first law of chemical thermodynamics	lecture	Daily and monthly exams

Week nineteen and twenty	2theoretical	Analyze, apply, understand	The first law of chemical thermodynamics	lecture	Daily and monthly exams
The twenty-first and twenty-second week	2theoretical	Analyze, apply, understand	The second law of chemical thermodynamics	lecture	Daily and monthly exams

Course Description Form

1. Course Name:

Chemistry

2. Course Code:

Organic metallic chemistry

3. Semester / Year:

Semester

4. Description Preparation Date:

2024/6/6

5. Available Attendance Forms:

presence

Number of Credit Hours (Total) / Number of Units (Total):

6.

02 Hours, 0 unit

7. Course administrator's name (mention all, if more than one name)

Name: Assistant professor Dr. Afraa Sabir Shihab
Email: afraasabir65@tu.edu.iq

8. Course Objectives

Course Objectives	1-Identifying (Organic metallic chemistry) 2- Learn to structure and name them, and learn to draw spatial shapes of the compounds 3-Learn the mechanics of its preparation and reactions

9. Teaching and Learning Strategies

Strategy	Theoretical lectures, practical application, electronic lectur daily exams, monthly exams

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first week	2 Theoretical	Analyze, apply, understand	Historical background of organometallic compounds	Theoreticaland electronic	Daily and mont exams and activities
second week	2 Theoretical	Analyze,apply, understand	Introduction to organometallic compounds	Theoretical	Daily and mont exams and activities
hird week	2 Theoretical	Analyze.apply, understand	Nomenclature of organomet compounds	Theoretical	Daily and mont exams and activities

fourth week	2 Theoretical	Analyze.apply, understand	Properties of organomet compounds	Theoretical	Daily and mont exams and activities
fifth week	2 Theoretical	Analyze,apply, understand	Classification of organometallic compounds	Theoretical	Daily and mont exams and activities
sixth week	2 Theoretical	Analyze,apply, understand	Stability of organometa compounds	Theoretical	Daily and mont exams and activities
seventh week	2Theoretical	Analyze,apply, understand	The 18 electron rule	Theoretical	Daily and mont exams and activities
eighth week	2 Theoretical	Analyze,apply, understand	Preparation of organomet compounds	Theoretical	Daily and mont exams and activities
ninth week	2 Theoretical	Analyze,apply, understand	Reactions of organomet compounds	Theoretical	Daily and mont exams and activities
enth week	2Theoretical	Analyze,apply, understand	Applications of organomet compounds	Theoretical	Daily and mont exams and activities
eleventh week	2 Theoretical	Analyze,apply, understand	Applications.of.Organic Magnesium	Theoretical	Daily and mont exams and activities
welfth week	2 Theoretical	Analyze.apply, understand	Applications of Organic Lithium	Theoretical	Daily and mont exams and activities
hirteenth week	2 Theoretical	Analyze,apply, understand	Applications of organic silicon	Theoretical	Daily and mont exams and activities
fourteenth week	2 Theoretical	Analyze ap understand	Applications of Organic Mercury	Theoretical	Daily and mont exams and activities
fifteenth week	2 Theoretical	Analyze, ap understand	Applications of Organic Aluminum and Borane	Theoretical	Daily and mont exams and activities

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Principles of Organometallic Chemistry G.E. COATES M.L.H. GREEN
Main references (sources)	Organic chemistry (Morrison and Boyd)
Recommended books and references (scientific journals, reports...)	Organotransition Metal Chemistry Fundamental Concepts and Applications Akio Yamamoto
Electronic References, Websites	The virtual library is electronic and has solid references from the Internet

Approval of the Dean

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first week and the second week	3 practical	The lecture	Itrodaction for Properties the Periodic Table	Analyze, apply, understand	Daily and monthly exams
The third week and Fourth week	3 practical	The lecture	first Clique \ Properties and preparation this Elements	Analyze, apply, understand	Daily and monthly exams
The fifth week and Sixth week	3 practical	The lecture	The Scond Clique \ Properties and preparation this first Clique \ Properties and preparation this Elements	Analyze, apply, understand	Daily and monthly exams
The seventh week and The eighth week	3 practical	The lecture	The therid Clique \ Properties and preparation this Elements	Analyze, apply, understand	Daily and monthly exams
The ninth week andThe tenth week	3 practical	The lecture	fourid Clique \ Properties and preparation this Elements	Analyze, apply, understand	Daily and monthly exams
The tenth week andThe twelfth week	3 practical	The lecture	fifth Clique \ Properties and preparation this Elements	Analyze, apply, understand	Daily and monthly exams

The thirteenth week andThe fourteenth week	3 practical	The lecture	thSixth Clique \ Properties and preparation this Elements	Analyze, apply, understand	Daily and monthly exams
The fifteenth week and Sixteenth week	3 practical	The lecture	seventh Clique \ Properties and preparation this Elements	Analyze, apply, understand	Daily and monthly exams
The seventeenth and week Eighteenth eighteenth	3 practical	The lecture	seventh Clique \ Properties and preparation this Elements	Analyze, apply, understand	Daily and monthly exams
The nineteenth week and week twen	3 practical	The lecture	seventh Clique \ Properties and preparation this Elements	Analyze, apply, understand	Daily and monthly exams
Twenty-second week	3 practical	The lecture	The 8ed Clique \ Properties and preparation this Elements	Analyze, apply, understand	Daily and monthly exams

11-Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ..... etc
12- Reference \ Inorganic chemistry,third edition,Catherin E- and other2008.

Course Description Form

1. Course Name:
Analytical chemistry
2. Course Code:
3. Semester / Year:
Second stage
4. Description Preparation Date:
19/2/2024
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
120 h/
7. Course administrator's name (mention all, if more than one name)
Name: Email:
8. Course Objectives

Course Objectives	• Familiarity with the method of quantitative weight analysis •.... familiarity with various separation methods such as extraction, chromatography and ion exchange

9. Teaching and Learning Strategies	
Strategy	

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1-2	4	The student gets to know the importance of analytical chemistry, analytical chemistry, and quantitative gravimetric analysis.	Analytical chemistry and quantitative gravimetric analysis	Lecture method.	Discussion during the lecture.
3-4	4	The student learns how to calculate the gravimetric coefficient	the chemical composition of the precipitate, and the calculations in quantitative gravimetric analysis	Lecture method.	Solve mathematical examples
5	2	Knowing the importance of the precipitate being poorly soluble.	Solubility of the precipitate	Lecture method.	Discussion during the lecture.
6-9	6	The student gets to know the most important factors affecting solubility	Factors affecting the solubility of precipitate	Lecture method.	Discussion during the lecture.
10	2	The importance of crystal formation	The crystal formation of the precipitate	Lecture method.	Discussion during the lecture.
11	2	The student learns a general introduction to separation methods	the theoretical foundations of separation methods	Lecture method.	Discussion during the lecture.

12	2	The student learns about other methods	Separation techniques using the indirect methods	Lecture method.	Discussion during the lecture.
13-14	4	The student learns about the extraction method and the use of a separating funnel	Solvent extraction	Lecture method.	Discussion during the lecture.
15	2	The student learns how to calculate the distribution coefficient,	The distribution coefficient	the lecture method	solving mathematical examples
16-19	6	The student learns about the method of separation	the method of separation by liquid extraction and the percentage of extraction	the lecture method	solving mathematical examples
20-22	4	The student learns about the influencing forces and the different systems of interactions	Forces affecting the two phases and extraction systems	Lecture method.	Discussion during the lecture.
23	2	The student learns about the concept of	The chromatography	Lecture method.	Discussion during the lecture.
24-25	4	The student learns about the types of techniques .	Techniques used for chromatography	Lecture method with illustrative photos .	Discussion during the lecture.

26	2	The student learns about the type of chromatography	Plate chromatography	Lecture method with illustrative photos .	Discussion during the lecture.
27	2	The student learns about the types of paper used.	The types of paper used	Lecture method.	Discussion during the lecture.
28	2	The student learns about the method of separation by electrophoresis	Separation by electrophoresis	Lecture method with illustrative photos .	Discussion during the lecture.
29-30	4	The student learns about the ion exchange method	The ion exchange method	Lecture method with illustrative photos .	Discussion during the lecture.

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

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course name
General Arabic
2. Course code
3. Semester/Year
quarterly
4. Date this description was prepared
20-1-2025
5. Available forms of attendance
My presence
6. Number of study hours (total) / Number of units (total)
2 hours and 2 units
7. Name of the course supervisor (if more than one name is mentioned)
Name: Baidaa Mohie Rman Email:
8. Course objectives

• Helping students to read and write correctly and obtaining student outcomes targeted learning • Recognizing the importance of the Arabic language and its relationship to guidance, diagnosis, classification and research Scientific • Learn about scientific foundations and scientific specifications and how to apply them to scientific materials. For study	Subject objectives

9. Teaching and learning strategies

3. Activating the learner's role in educational situations 4. Encouraging learners to generate creative ideas about a specific topic, by searching for correct answers, or possible solutions to the issues presented. On them	Strategy

10. Course Structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Watches	The week
Written and oral tests	The casting	Surah Maryam and its compatibility with Surah Al-Kahf and Taha.			**the first**
		What is the Arabic language?			**the second**
		The concept of literature			**the third**
		Common mistakes in official correspondence books.			**Fourth**
		The poet Nazik Al-Malaika			**Fifth**
		The poet Abdul			**Sixth**

		Wahab Al-Bayati			
		The poet Saadi Youssef			**Seventh**
		Monthly exam			**The eighth**
		relative			**Ninth**
		Past tense construction			**tenth**
		Tanween			**eleventh**
		The call			**twelfth**
		Crushing plural			**thirteenth**
		The five names			**fourteenth**
		Demonstrative pronouns			**fifteenth**

11. Course Evaluation	
The grade is distributed out of 100 according to the tasks assigned to the student, such as daily preparation and exams. Daily, oral, monthly, written, reports, etc.the chapterFirst 25And the chapterSecond 25 and final exam 50	
12. Learning and teaching resources	
A set of resources approved by the Ministry	Required textbooks (methodology if any) ....
	Main References (Sources) .....
	Recommended supporting books and references (scientific journals, reports...)
	Electronic references, websites

Course Description Form

1. Course Name:
English language
2.
None
3. Semester / Year:
Year

4. Description Preparation Date:
25\1\2025
5. Available Attendance Forms:
Physical - Electronic - Integrated
6. Number of Credit Hours (Total) / Number of Units (Total)
30 \ 60
7. Course administrator's name (mention all, if more than one name)
Assitstant Teacher : Omer Ahmed Dahham ahmeddahham87@gmail.com

8. Course Objectives	
Course Objectives	A- Teaching students the English language and all its skills. B- Preparing a competent physical education teacher proficient in using a secondary language. C- Preparing a student capable of understanding the English language and its skills. D- Developing students' level and raising their awareness of the importance of language in both elementary and advanced stages. E- Investing in the English language subject theoretically and practically to enhance the educational level.

9. Teaching and Learning Strategies	
Strategy	1. Active Learning. 2. Cooperative Learning. 3. Brainstorming. 4. Free and Guided Discussions. 5. Task Analysis.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic	Teaching Method	Assessment Method
1	2	General Tenses	Unit 1	Collaborative	Oral

				Learning	
2	2	Forming Questions - Introduction	Unit 1	Collaborative Learning	Oral
3	2	Present Tenses - Introduction	Unit 2	Collaborative Learning	Oral
4	2	Past Tenses - Introduction	Unit 3	Discussion Circles	Oral
5	2	Time and Date	Unit 3	Collaborative Learning	Oral
6	2	Quantities	Unit 4	Collaborative Learning	Oral
7	2	Written Exam	Written Exam	Written Exam	Written Exam
8	2	Future Tense	Unit 5	Collaborative Learning	Oral
9	2	Comparison and Preference	Unit 6	Collaborative Learning	Oral
10	2	Directions	Unit 6	Collaborative Learning	Oral
11	2	Present Perfect	Unit 7	Collaborative Learning	Oral
12	2	Conditions	Unit 7	Collaborative Learning	Oral
13	2	Short Answers	Unit 7	Collaborative Learning	Oral
14	2	Written Exam	Written Exam	Written Exam	Written Exam
15	2	Additional Rules	Unit 8	Collaborative Learning	Oral
16	2	Imperative Verbs	Unit 8	Collaborative Learning	Oral
17	2	Sentence Construction	Unit 9	Collaborative Learning	Oral
18	2	Adjectives and exclamation Phrases	Unit 10	Collaborative Learning	Oral
19	2	Passive Voice	Unit 11	Collaborative Learning	Oral
20	2	First Conditional Sentence	Unit 11	Collaborative Learning	Oral
21	2	Written Exam	Written Exam	Written Exam	Written Exam
22	2	Second Conditional	Unit 11	Collaborative	Oral

		Sentence		Learning	
23	2	Continuous Future Tense	Unit 12	Collaborative Learning	Oral
24	2	Reported Speech	Unit 13	Collaborative Learning	Oral
25	2	Comprehension	Unit 14	Collaborative Learning	Short Reports
26	2	Irregular Verbs	-	Collaborative Learning	Oral
27	2	Common Words	-	Collaborative Learning	Oral
28	2	Written Exam	Written Exam	Written Exam	Written Exam
29	2	Social Terms	-	Collaborative Learning	Oral
30	2	Common Mistakes	-	Collaborative Learning	Oral

11- Course Evaluation
Grading for the Semester - First Semester (theoretical 25%) - Second Semester (theoretical 25%) - Midterm Assessment: 50% Final Exam - theoretical (50%) Additional Information
12 - Sources
"New Headway Beginners" by Liz and John Soars "A Step Up To English & Sport Sciences" by Ass.Prof. Anasam Yaroub Khayoun, Ass. Prof. Miada Zuhair, and Prof. Yaroub Khayoun

Course Description Form

Course name .1
Second Stage - Educational Administration
Course code .2

EPS201
Semester/Year .3
annual
Date this description was prepared .4
2025-1-20
Available forms of attendance .5
esenceMy pr
(Number of study hours (total) / Number of units (total .6
hours theory Number of units 4 2
(Name of the course supervisor (if more than one name is mentioned .7
: Name: Ms. Faten Nawaf Email
Course objectives .8

• ds managementUnderstan • Knows the elements of the educational process • Knows the nature of management • decision making ability	Subject objectives
Teaching and learning strategies .9	
Theoretical lectures, electronic lectures, .daily exams, monthly exams	Strategy

Course Structure .10

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Watches	The week
Daily and monthly exams	The lecture Discussion	The concept of management in Islam	Analyze, apply, understand	2 theoretical	First week Second week
Daily and monthly exams	The lecture Discussion	Nature of management	Analyze, apply, understand	2 theoretical	third week The Week 4
Daily and monthly exams	The lecture Discussion	Definition of management	Analyze, apply, understand	2 theoretical	Week 5 Week 6
and monthly exams	The lecture Discussion	Elements of the	Analyze, apply, understand	2 theoretical	The seventh week Week 8

		administrative process			
Daily and monthly exams	ctureThe le Discussion	The five steps in the organizing process	Analyze, apply, understand	2 theoretical	Week 9 The tenth week
Daily and monthly exams	The lecture Discussion	Contact	Analyze, apply, understand	2 theoretical	Week eleven twelfth week
Daily and monthly exams	lecture The Discussion	decision making	Analyze, apply, understand	2 theoretical	thirteenth week Fourteenth week
Daily and monthly exams	The lecture Discussion	Motivation	Analyze, apply, understand	2 theoretical	Week 15 Week 16
Daily and monthly exams	The lecture Discussion	Administrative the decision is essence of the planning .process	Analyze, apply, understand	2 theoretical	Seventeenth week th week18
Daily and monthly exams	The lecture Discussion	Calendar, Classroom Management	Analyze, apply, understand	2 theoretical	th week19 Week 20
Daily and monthly exams	The lecture Discussion	Educational administrative leadership patterns, educational supervision	Analyze, apply, understand	2 theoretical	-Week twenty one -Week twenty two

Course Evaluation .11	
he student, The grade is distributed out of 100 according to the tasks assigned to t .such as daily preparation, daily, oral, monthly and written exams, reports, etc	
Learning and teaching resources .12	
Educational administration	(Required textbooks (methodology if any
	(Main References (Sources
	and Recommended supporting books (...references (scientific journals, reports
	Electronic references, websites

Course Description Form

1. Course Name: differential equations
2. Course Code: second
3. Semester / Year:2024\2025
4. Description Preparation Date:25\1\2025
5. Available Attendance Forms:daily
6. Number of Credit Hours (Total) / Number of Units (Total) 60
7. Course administrator's name (mention all, if more than one name)
Name: samar wathe ..... q .... omar Email: samar .wath eq@tu .edu.iq
8. Course Objectives

Course Objectives	• • The student's knowledge of a larger and more comprehensive group of numbers • Finding solutions to some equations that have no solution in real numbers • The student's knowledge of calculus methods for complex functions • •

9. Teaching and Learning Strategies

Strategy	Strategy: Linking the lecture to reality as much as possible so that the student learns to benefit from his studies in reality. Giving importance to the practical aspect

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Firist Second Third Fourth Fifth Sixth Seventh Eighth Ninth	2	recognize differential equations ---------- recognize algebraic differentiation, Solutions to questions about differentiation Learn about integration methods Algebraic integration Solutions Examples of integration Equivalence of the Constitution Solutions About the Constitution Cartesian painting Examples of drawing methods			

Tenth Eleventh Twelfth Thirteenth fourteenth		Theories of purpose Continuity Examples of continuity Regular continuity Analytic functions Examples of analytic functions My Cartesian Cauchy Riemann formulas Cauchy-Riemann's integral theorem in both forms Sequences Examples of sequences Solutions to consecutive questions Series Examples of series Solutions to Series Questions			

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .....etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

ourse nameC .1
Baath regime crimes / second stage
Course code .2
Bachelor
Semester/Year .3
2025/2024
Date this description was prepared .4
2024/23/10
Available forms of attendance .5
daily
(Number of study hours (total) / Number of units (total .6
hours 30
(Name of the course administrator (if more than one name is mentioned .7
:mail-e M.M. Mukhallad Hamad Khalaf :the name mkhldalwyd380@gmail.com
Course objectives .8

• Introducing students to the history of the defunct Baath Party in Iraq . • Knowing the violations that occurred during the rule of the defunct Baath Party. • The student should know the extent of the impact of the wars that occurred during the defunct Baath Party on the rule of Iraq economically and politically.	**jectivesSubject ob**

Teaching and learning strategies .9

Lecture style, discussing with students, and asking and exchanging questions with students	**Strategy**

Course Structure .10

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Watches	The week
nothing	Lectures	A descriptive overview of the political systems in Iraq	Chapter One Violations and Rights freedoms	1	the first
discussion	Lectures	Monarchy		1	the second
discussion	Lectures	Republican era		1	the third
Daily exam	Lectures and discussions	Baathist Republican Era		1	Fourth
discussion	Lectures	Violation of intellectual rights and public freedoms	Violations of public rights and freedoms by the Baath regime	1	Fifth
surprise exam	Lectures	Intellectual property violations		1	thSix
discussion	Lectures and discussions	Violation of public freedoms		1	Seventh
discussion	Lectures and discussions	Violation of the -right to multi partyism		1	The eighth
ritten examW	Written exam			1	Ninth
discussion	Lectures and discussion	Violation of freedom of expression	Violations of social, political and cultural rights	1	tenth

discussion	Lectures and discussions	revocation of nationality		1	eleventh
discussion	es and Lectur discussions	Other social rights		1	twelfth
discussion	Workshop	Violation of cultural rights and freedoms		1	thirteenth
discussion	Lectures + discussion	First and Second Gulf War	Violation of international law	1	fourteenth
Written exam	Written exam	International blockade on due to the Iraq invasion of Kuwait		1	fifteenth
discussion	Lectures	The impact of the Baath regime's behavior on society		1	Sixteenth
Daily exam + discussion	Lectures	Arbitrary arrests, torture of prisoners and executions		1	seventeenth
discussion	Lectures + discussion	arbitrary detention of suspects		1	theighteen
	Lectures	Execution of military and civilian personnel		1	nineteenth
discussion	Lectures + discussion	separation of powers	Limiting the three powers to the Baath regime	1	Twenty
discussions	Lectures + brainstorming	Governing powers under the regime		1	first-tytwen
discussion	Lectures + discussion	Psychological field	Chapter Two	1	second-twenty
	Discussions + Lecture	Social field		1	third-twenty
Daily exam + discussion	ecturesL	Religion and State		1	twenty fourth
discussion	Lectures	Culture, media and the militarization of society		1	twenty fifth
discussion	Lectures + discussion	The impact of oppression and	Chapter Three	1	sixth-twenty

		wars on the environment and population			
discussion	**Lectures + discussion**	**Use of internationally prohibited weapons and environmental pollution**		**1**	**-twenty seventh**
discussion	**Lectures + discussion**	**scorched earth policy**		**1**	**eighth-twenty**
discussion	**rmingbrainsto**	**Drying of the marshes and forced migration**		**1**	**ninth-twenty**
discussion	**Lectures + discussion**	**Destruction of agricultural and animal environment and radioactive contamination**		**1**	**thirty**
discussion	**Lectures + discussion**	**Mass graves and bombing of places of worship**		**1**	**one-Thirty**
Monthly exam	**nthly Mo exam**			**1**	**second-Thirty**

Course Evaluation .11	
:Monthly exams score ,15 **:Homework and reports score** ,10 **:Daily exams score** 25 50 **:Final Exam Score**	
Binder (Crimes of the Baath (Regime in Iraq	(Required textbooks (methodology if any
The curriculum of the crimes of the defunct Baath Party 2023, Ministry of Higher Education and Scientific Research	(Main References (Sources

nothing	Recommended supporting books and (...references (scientific journals, reports
Official Arab and foreign websites that talk about the crimes of the Baath Party in Iraq	references, websites Electronic

Academic Program Description
Second stage course
Developmental Psychology

res of This course description provides a concise summary of the main featu the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning . opportunities available. It must be linked to the programme description

For Humanities

stry of Higher Education and Scientific Mini Research / Tikrit University	.Educational institution
College of Education for Pure Sciences / Department of Chemistry	.Scientific Department / Center
developmental psychology	.Name of academic or professional program
Chemistry -Bachelor	.Final Certificate Name
annual	. : system Annual / Courses / Other
	.Accredited Certification Program
	.Other external influences
0202 – 0202	.Description preparation date
.Academic Program Objectives	
t of developmental psychology, Providing the student with insight into the concep -1 . its importance and goals	

The student's ability to identify the growth requirements at each developmental -2 .stage
The student should distinguish between the theories of cognitive, psychological -3 . and social development
The student should realize the importance of adolescence as a critical stage in -4 .growth, its problems, ways to treat it, and its characteristics
.The student acquires abilities and skills in developmental psychology -5

.teaching, learning and assessment methods ,Required program outcomes
- Cognitive objectives Providing the student with the basic knowledge, concepts and information of -A1 .developmental psychology The student should become familiar with the general principles and laws of -A2 .development human Understanding and shedding light on the developmental characteristics of each -A3 .stage of growth, from childhood through adolescence, youth and old age Understanding and comprehending the theories that explain all aspects of -A4 .physical, psychological, mental, emotional, personal, social, and moral :growth The student acquires knowledge of genetic and environmental factors affecting -A5 .growth
Program specific skill objectives -B haracteristics of developmental The student should be able to understand the c - B1 .psychology for the scientific material The student should be able to acquire the skill of applying moral, cognitive and - B2 .social theories solving skills -The student should be able to develop developmental problem - B3 .ithin the stages of growth and methods of caring for themw
Teaching and learning methods
.(The inductive method (lecture- .(Discussion method (educational dialogue- .The method of educational groups in taking turns in discussion- , d using modern scientific techniquesPreparing, preparing an-PowerPoint .
Evaluation methods
up, -Formative assessment (exams) Daily, class discussion, homework and follow- .(class assessment, educational applications, discussion groups, periodic tests

semester and final exams to issue judgments of success) Diagnostic assessment- (and failure
. Emotional and value goals -C .Encouraging the student to use developmental psychology methods -A1 .To apply the principles of developmental psychology -A2 ability to distinguish between positive and negative Developing the student's -A3 .social upbringing methods within each stage of development to appreciate the feelings and emotions of Developing the student 's ability -A4 .others and how to control them in a positive way
and learning methods Teaching
objectives do not depend on traditional teaching methods, because they are value :objectives that cannot be taught like cognitive objectives, so they depend on how Overcoming some problems during childhood, adolescence and youth, and -1 .to choose a partner and work Forming a general category of good values and sound moral and social -2 .development Providing psychological motivation to achieve emotional goals of growth and -3 .development hat each person grows in a unique Growth is an individual process, meaning t -4 .way
Evaluation methods
Affective goals are not assessed through traditional tests, but rather rely on observing the student's behavior, interviewing them , discussing them, and he educational environment, which provides following up on their relationship with t .a cumulative record of their representation of affective and value goals

General and transferable skills (other skills related to employability and personal -D .(development . cussion skillsScientific dialogue and dis - D1 Modern technology skills in communications, documentation and -D2 .communication with scientific institutions and centers .Teamwork skills, especially in scientific research -D3 and psychological Skills in solving educational problems using educational -D4 .programs and methods

Teaching and learning methods
Adopting the electronic class viaGoogle Meeting . .Inductive (deductive) method .Problem solving method h the He repeated the training courses and seminars to provide female students wit ability to communicate with society, the ability to engage in fruitful dialogue, and .solve educational problems using scientific methods Classroom interaction and exchange of opinions between the student and the teacher .s and discuss their solutionsto raise learning difficultie .Using PowerPoint to present lectures to students
Evaluation methods
.Oral and written tests , individual and group, theoretical and practical e, intellectual Direct observation of the student's performance in the areas of dialogu and scientific communication, and teamwork within the classroom and the college .and university environment Assigning students to prepare scientific research to test their ability to think, draw .conclusions and solve problems .tsPeriodic tes-

.Planning for personal development
Scientific communication through seminars, conferences and joint work - .with qualified cadres in similar specializations Reviewing international studies in similar departments, to develop the - . research and solve scientific problems ability to Engaging in acquiring modern scientific experiences and skills in the - .field of modern technical communication

.(Admission Criteria (Setting regulations for admission to a college or institute
the college follows the central distribution system adopted Admission to - by the Ministry of Higher Education and Scientific Research according to the admission form for Iraqi universities and institutes and by balancing . ainedbetween the student's desire and the total he obt As for admission to the Department of Educational and Psychological Sciences, it is subject to a competitive exam, with a balance between the .student's desire for the sixth grade in secondary school
.ut the programThe most important sources of information abo
The program link on the Internet, and its applications in similar - .universities Training courses held by the University Quality and Performance - .Departments on the program in various institutes and colleges in Iraq

Course Description Form

1. Course Name:
Practical industrial chemistry
2. Course Code:
3. Semester / Year:
2023-2024
4. Description Preparation Date:
2021-2024
5. Available Attendance Forms:
Direct attendance in classrooms
6. Number of Credit Hours (Total) / Number of Units (Total)
8 practical hours / 4 units
7. Course administrator's name (mention all, if more than one name)

Name: Asmaa bader saber

8. Course Objectives

Course Objectives 1- Providing students with general information for industrial chemistry 2- Introducing students to methods of preparing soap 3- Explaining to students how to deal with chemicals and tools in the laboratory 4- An explanation to students about how to prepare solid and liquid solutions 5- Introducing students to the correction process and how it is performed in the laboratory	• • •

9. Teaching and Learning Strategies

Strategy	1- Organic the student to laboratory techniques in industrial chemistry. 2- Organic the student to methods for preparing laboratory chemicals. 3- Organic the student to the dangers of chemical and laboratory materials.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
30weeks	90 hours				examinations

Course Description Form

1. Course Name:
Practical inorganic chemistry
2. Course Code:
3. Semester / Year:
2024-2025
4. Description Preparation Date:
15/1 /2025
5. Available Attendance Forms:
Direct attendance in classrooms
6. Number of Credit Hours (Total) / Number of Units (Total)
8 practical hours / 4 units
7. Course administrator's name (mention all, if more than one name)
Name : : M.M. Masharif Nouri Faisal, Name: M.D. Mahmoud Mahdi Saleh
8. Course Objectives

Course Objectives	• ..... • ..... • ..... •
1- Providing students with general information for industrial chemistry 2- Introducing students to methods of preparing soap 3- Explaining to students how to deal with chemicals and tools in the laboratory 4- An explanation to students about how to prepare solid and liquid solutions 5- Introducing students to the correction process and how it is performed in the laboratory	

9. Teaching and Learning Strategies	
Strategy	1-Providing students with general information about inorganic and coordination chemistry. 2- Introducing students to methods of expressing concentrations and giving laws. 3-Explaining to students how to deal with chemicals and tools in the laboratory 4-. Explaining to students how to prepare solid and liquid solutions 5- Introducing students to how to measure melting and boiling points and recrystallization

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
30weeks	90 hours		Knowledge of chemical elements Knowledge of dealing with laboratory materials and tools Study of the elements of the periodic table and its divisions		examinations

Course Evaluation11	
Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, reports, etc.	
.12Learning and Teaching Resources	
Fundamentals of coordination chemistry by Mohamed Magdy Wasil	Required textbooks (methodology if available(
	Main References (Sources(
	Recommended supporting books and references (scientific journals, reports
	Electronic references, Internet sites

Course Description Form

1. Course name
Practical analytical chemistry
2. Course code
3. Semester/Year
Academic year 2023-2024
4. Date this description was prepared
2025.1.26
5. Available forms of attendance
Live attendance in classrooms
6. Number of study hours (total) / Number of units (total)
8 hours of practical work / 4 units
7. Name of the course supervisor (if more than one name is mentioned)
lecturer Zeina Tarek Khattab lecturer rahma Abdul Hamid Hassan
8. Course objectives

Explaining to students how to prepare solid and liquid solutions. -9 Introducing students to the correction process and how it is -10	Providing students with general information about analytical chemistry. -6

carried out in the lab	Introducing students to methods of expressing concentrations and giving laws -7 Explaining to students how to deal with chemicals and tools in the laboratory -8
	9. Teaching and learning strategies
	Introducing the student to laboratory techniques in analytical chemistry. -4 Introducing the student to methods of preparing laboratory chemicals. -5 Introducing the student to the hazards of chemicals and laboratory materials. -6
	10. Course Structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Watches	The week
Exams, homework, lab reports, scientific research	**My presence**			**90hour**	**30 weeks**

11. Course Evaluation	
The grade is distributed out of 100 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	
Practical Analytical -3 Chemistry by Hadi Kazim Practical Analytical -4 Chemistry by John H. Kennedy	Required textbooks (methodology if any)
4-Harris DC "Quantitative chemical analysis", 6th Ed. Freeman and Company, New York, 2003 5-Gary D. Christian, Purnendu K. Sgupta, Kevin A. Schug, Analytical Chemistry, 7th Edition, 2013	Main References (Sources)
	Recommended supporting books and references (scientific journals, reports...)
	Electronic references, websites

saCourse Description Form

1. Course Name: physical chemistry
2. Course Code:
3. Semester / Year:
year
4. Description Preparation Date:
5/1/2025
5. Available Attendance Forms:
presence
6. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical
7. Course administrator's name (mention all, if more than one name)
Ahmed saeed othman .... Email: Dra.dabbagh@tu.edu.iq
8. Course Objectives

Course Objectives	**• • Learn to measure the molecular weight of volatile liquids** **• It can measure the density of solid materials** **• It is able to distinguish between endothermic and endothermic reactions.** • Learn to measure the surface tension of liquids • •
9. Teaching and Learning Strategies	

Strategy	Theoretical explanation of the experiment, practical application, lectures, daily exams, monthly exams

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	(2)Theoretical 3 Practical	Analysis, application, understanding	Rate of reaction	Lecture	Daily and monthly exams
3-4	(2)Theoretical 3 Practical	Analysis, application, understanding	Zero order reaction	Lecture	Daily and monthly exams
5-6	2)Theoretical 3 Practical	Analysis, application, understanding	First order reaction	Lecture	Daily and monthly exams
7-8	2)Theoretical 3 Practical	Analysis, application, understanding	Second order reaction	Lecture	Daily and monthly exams
8-9	2)Theoretical 3 Practical	Analysis, application, understanding	Third order reaction	Lecture	Daily and monthly exams

10-11	2)Theoretical 3 Practical	Analysis, application, understanding	Complex reaction	Lecture	Daily and monthly exams
12-13	2)Theoretical 3 Practical	Analysis, application, understanding	Methode for measuring order of reactions	Lecture	Daily and monthly exams
14-15	2)Theoretical 3 Practical	Analysis, application, understanding	Theory of reaction rate	Lecture	Daily and monthly exams
16-17	2)Theoretical 3 Practical	Analysis, application, understanding	Chain reaction	Lecture	Daily and monthly exams
18-19	2)Theoretical 3 Practical	Analysis, application, understanding	Parallel reaction	Lecture	Daily and monthly exams
20-21	2)Theoretical 3 Practical	Analysis, application, understanding	Ionic reactions	Lecture	Daily and monthly exams
22-23	2)Theoretical 3 Practical	Analysis, application, understanding	Catalytic reaction	Lecture	Daily and monthly exams

T					

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or writte

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

2. Learning and teaching resources

Physical Chemistry / Electrochemistry

Main References Atkins Physical Chemistry 12th Edition

Kinetic chemistry (shaking)

Recommended supporting books and references (scientific journals, reports...)

Electronic references, Internet sites

Course Description Form

Course name .1					
Third -Mechanism of Organic Reactions					
deCourse co .2					
CH8					
Semester/Year .3					
annual					
Date this description was prepared .4					
2025-1-20					
Available forms of attendance .5					
My presence					
(Number of study hours (total) / Number of units (total .6					
hours of theory + 6 hours of practical, number of units: 7 2					
(Name of the course supervisor (if more than one name is mentioned .7					
rof. Dr. KhalName: Pid Abdulaziz Attia . Email: khalidalbadrany477@tu.edu.iq					
Course objectives .8					
• Learn the mechanism of organic reaction • Able to suggest mechanisms of organic reactions • Learn to draw the spatial shapes of vehicles.			Subject objectives		
Teaching and learning strategies .9					
Theoretical lectures, practical application, electronic lectures, daily exams. monthly exams			Strategy		
Course Structure .10					
Evaluation method	Learning method	Name of the unit or topic	ed Requir learning outcomes	Watches	The week
Daily and	The lecture	Carbon	Analyze, apply,	2	First week Second

monthly exams		compounds and chemical bonds	understand	theoretical practical 6	week
Daily and monthly exams	The lecture	Composition and effectiveness	Analyze, apply, understand	2 heoreticalt practical 6	The third week Week 4
and monthly exams	The lecture	Acids and bases	Analyze, apply, understand	2 theoretical practical 6	Week 5 Week 6
Daily and monthly exams	The lecture	Active organic intermediates	Analyze, apply, understand	2 theoretical practical 6	The seventh week Week 8
Daily and monthly exams	The lecture	Aliphatic substitution reactions	Analyze, apply, understand	2 theoretical practical 6	Week 9 The tenth week
Daily and monthly exams	The lecture	Deletion reactions	Analyze, apply, understand	2 theoretical practical 6	Week eleven twelfth week
Daily and monthly exams	The lecture	Addition to -the Carbon Carbon Band-Multi	Analyze, apply, understand	2 theoretical practical 6	thirteenth week Fourteenth week
Daily and monthly exams	The lecture	Nucleophilic addition to a carbon bond of a different atom	Analyze, apply, understand	2 theoretical practical 6	Week 15 Week 16
Daily and monthly exams	The lecture	-Oxidation reduction reactions	Analyze, apply, understand	2 theoretical practical 6	Seventeenth week th week18
Daily and monthly exams	The lecture	rearrange	Analyze, apply, understand	2 theoretical practical 6	th week19 Week 20
Daily and monthly exams	The lecture	Electrophilic and nucleophilic substitution on the aromatic ring	Analyze, apply, understand	2 theoretical practical 6	first week-twenty two-Week twenty

Course Evaluation .11

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

Learning and teaching resources .12

Mechanism of Organic Reactions, Dr. Khaled Mahmoud Daoud	(Required textbooks (methodology if any

e to the Mechanism of A Guid Organic Reactions, Peter Sykes Organic Reaction Mechanism Guide Fadel Kamouna	(Main References (Sources
Journals specialized in organic chemistry	Recommended supporting books and references (...scientific journals, reports)
	Electronic references, websites

ومدرج وصف انمقشس

1. اسم انمقشس	
) (حهقح غيش متجاوسح اختياسي	
2. سمز انمقشس	
3. انفصم / انسح	
ىنئً	
4. تاسيخ إعذاد هزا انىصف	
2024-2-21	
5. أشكال انحضىس انمتاحح	
حضىسي	
6. عذد انساعاخ انذساسيح (انكهي) / عذد انىحذاخ (انكهي)	
2 ساعح وظشي, عذد انىحذاخ 4	
7. اسم مسؤول انمقشس انذساسي (ارا اكثش مه اسم يزكش)	
Name: Assoc. Prof. Dr. Yousra Khalaf Mohammed	Email: ysrakhalaf78@tu.edu.iq
8. اهذاف انمقشس	
اهذاف المادج الذراسٍ	• • Learns about the types of ring compounds. • Understands methods for synthesizing ring compounds. • Learns the mechanisms of reactions involving these compounds.

9. استشاتيجياخ انتعهيم وانتعهم	
The provided text translates to: Theoretical Lectures, Online Lectures, Daily Exams, Monthly Exams	الاسرراذجُخُ

10. تنحُ المقرر

الأسْبع	الساعاخ	مخرجاخ الرعلم المطلنح	اسم الدحذج او المنضع	طرقَح الرعلم	طرقَح الرقمُ
.1	2	Analysis, Application, Understanding	Definition of nonhomogeneous ring compounds	The Lecture	Daily and Monthly Exams
.2	2	Analysis, Application, Understanding	Naming of nonhomogeneous ring compounds	The Lecture	Daily and Monthly Exams
.3	2	Analysis, Application, Understanding	Naming of nonhomogeneous ring compounds	The Lecture	Daily and Monthly Exams
.4	2	Analysis, Application, Understanding	Aromaticity conditions for compounds	The Lecture	Daily and Monthly Exams
.5	2	Analysis, Application, Understanding	Aromaticity conditions for compounds	The Lecture	Daily and Monthly Exams
.6	2	Analysis, Application, Understanding	Pyrrole	The Lecture	Daily and Monthly Exams
.7	2	Analysis, Application, Understanding	Pyrrole	The Lecture	Daily and Monthly Exams
.8	2	Analysis, Application, Understanding	Pyrrole	The Lecture	Daily and Monthly Exams
.9	2	Analysis, Application, Understanding	Furan	The Lecture	Daily and Monthly Exams
.10	2	Analysis, Application,	Furan	The Lecture	Daily and

Monthly Exams			Understanding		
Daily and Monthly Exams	The Lecture	Furan	Analysis, Application, Understanding	2	.11
Daily and Monthly Exams	The Lecture	Thiophene	Analysis, Application, Understanding	2	.12
Daily and Monthly Exams	The Lecture	Thiophene	Analysis, Application, Understanding	2	.13
Daily and Monthly Exams	The Lecture	Thiophene	Analysis, Application, Understanding	2	.14
Daily and Monthly Exams	The Lecture	Nonhomogeneous hexacyclic compounds	Analysis, Application, Understanding	2	.15
Daily and Monthly Exams	The Lecture	Nonhomogeneous hexacyclic compounds	Analysis, Application, Understanding	2	.16
Daily and Monthly Exams	The Lecture	Pyridine	Analysis, Application, Understanding	2	.17
Daily and Monthly Exams	The Lecture	Pyridine	Analysis, Application, Understanding	2	.18
Daily and Monthly Exams	The Lecture	Pyridine	Analysis, Application, Understanding	2	.19
Daily and Monthly Exams	The Lecture	Pyrazole and imidazole	Analysis, Application, Understanding	2	.20
Daily and Monthly Exams	The Lecture	Pyrazole and imidazole	Analysis, Application, Understanding	2	.21
Daily and Monthly Exams	The Lecture	Pyrazole and imidazole	Analysis, Application, Understanding	2	.22

Daily and Monthly Exams	The Lecture	Oxazole and isoxazole	Analysis, Application, Understanding	2	.23
Daily and Monthly Exams	The Lecture	Oxazole and isoxazole	Analysis, Application, Understanding	2	.24
Daily and Monthly Exams	The Lecture	Oxazole and isoxazole	Analysis, Application, Understanding	2	.25
Daily and Monthly Exams	The Lecture	Thiazole and isothiazole	Analysis, Application, Understanding	2	.26
Daily and Monthly Exams	The Lecture	Thiazole and isothiazole	Analysis, Application, Understanding	2	.27
Daily and Monthly Exams	The Lecture	Thiazole and isothiazole	Analysis, Application, Understanding	2	.28
Daily and Monthly Exams	The Lecture	Indole	Analysis, Application, Understanding	2	.29
Daily and Monthly Exams	The Lecture	Indole	Analysis, Application, Understanding	2	.30

11. تقييم انمقرّس

Distribution of Grades:

20 points for the first semester, 20 points for the second semester, 5 points for attendance , 5 points for activities and reports , 50 points for the final exam

12. مصادس انتعهم وانتدّسيس

Heterocyclic compounds Dr. Ghassan Qais Ali	الكرة المقررج المطلتح (المنهجُ أن وجذخ)
Organic Chemistry Dr. Mohamed	المراجع الرئسُح (المصادر)

bin Ibrahim Abdulaziz	
Journals Specialized in Organic Chemistry	الكرة والمراجع الساندج الرٍ نَصً تها (المجلاخ العلمخُ, الرقارزَ...)
	المراجع الإلكررونخُ, مناقع الانررندُ

Course Description Form

1. Course Name:
Inorganic Chimestry
2. Course Code:
3. Semester / Year:
2023-2024
4. Description Preparation Date:
1-8-2024
5. Available Attendance Forms:
In person .....
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours .....
7. Course administrator's name (mention all, if more than one name)
Name: Luma Abdulkader Hatem Email: Luma84@tu.edu.iq
8. Course Objectives

Course Objectives • Increasing the student's awareness of the importance of chemical elements • 2 - Increasing the student's awareness of the importance of elements as a basis in life • Systematizing the student as the basis for building a generation on whose shoulders lies success and academic excellence • 3 - Preparing an educational cadre with academic competence	• • •

9. Teaching and Learning Strategies	
Strategy	- Using the board - Homework and assignments - Writing reports and research related to the subject - Exams, discussions and class activities - Following up on the practical material in the laboratory

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	topic Arrangement of the Periodic	Lecture	Theoretical	Follow-up Daily Assignments and Active Participation
2	2	Properties of Atoms	Lecture	Theoretical	Follow up on daily assignments and active participation
3	2	Hedrogen	Lecture	Theoretical	Follow up on daily assignments and active participation
4	2	Group 1 (alkalis)	Lecture	Theoretical	Follow up on daily assignments and active participation
5	2	Proparatice of Group 1 (alkalis)	Lecture	Theoretical	Follow up on daily assignments and active participation

6	2	Group 2 (alkaline earths)	Lecture	Theoretical	Follow up on daily assignments and active participation
7	2	Proparatice of Group 2 (alkaline earths)	Lecture	Theoretical	Follow up on daily assignments and active participation
8	2	Boron group	Lecture	Theoretical	Follow up on daily assignments and active participation
9	2	Proparatice of boron group	Lecture	Theoretical	Follow up on daily assignments and active participation
10	2	Nitrogene group	Lecture	Theoretical	Follow up on daily assignments and active participation
11	2	Carbon group	Lecture	Theoretical	Follow up on daily assignments and active participation
12	2	Oxigen group	Lecture	Theoretical	Follow up on daily assignments and active participation

13	2	Halogenes group	Lecture	Theoretical	Follow up on daily assignments and active participation
14	2	Nopele gases	Lecture	Theoretical	Follow up on daily assignments and active participation
15	2	Proparatice of chimecal elemente	Lecture	Theoretical	Follow up on daily assignments and active participation

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Cource evalution

The final grade for the evaluation is 100 points. The minimum for success is 50 points. The evaluation grade is distributed over the effort of 50 points and the end-of-year exam of 50 points. The agencies for each semester: -
- First month exam of 10 points for each semester
- Second month exam of 10 points for each semester
- Daily preparation and participation 5 points for each semester

End-of-year exam 50 points

11. Course Evaluation

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

1- Modern Inorganic Chemistry Part One Authored by Dr. Basem Mohammed Al-Saadi
2- Inorganic Chemistry Part One Authored by Dr. Naaman Al-Naimi and his group
3- Inorganic Chemistry Authored by Dr. Mahdi Naji Al-Zakum
4- Nuclear and Radioactive Chemistry Authored by Dr. Anis Al-Rawi
5- Inorganic Chemistry Authored by Dr. Issam Gerges Saloumi

Course Description Form

1. Course Name:
Biochemistry
2. Course Code:
3. Semester / Year:
annual
4. Description Preparation Date:
14/1/2025
5. Available Attendance Forms:
My presence
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours theory / 4 units
7. Course administrator's name (mention all, if more than one name)

Name : Dr. Omar Ali Kanosh
Email : omar_alkanosh@tu.edu.iq

8. Course Objectives

Course Objectives	• Identifying the vital molecules and vital compounds that contribute to building the components of the body. • Graduating teaching staff familiar with the basics of chemistry and various specializations and applying them practically. The compatibility of the theoretical aspect with the practical aspect in the labor market.

9. Teaching and Learning Strategies

Strategy	Theoretical lectures, electronic lectures, exams

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Analyze, apply, understand	Definition of biochemistry, the important basic life molecules in building the living organism	Lecture	Daily and monthly exams
2	2	Analyze, apply, understand	Carbohydrates, definition of carbohydrates, classification of carbohydrates, structural composition of carbohydrates	Lecture	Daily and monthly exams
3	2	Analyze, apply, understand	Optical activity of saccharides	Lecture	Daily and monthly exams
4	2	Analyze, apply, understand	The ring structure of s saccharides	Lecture	Daily and monthly exams

5	2	Analyze, apply, understand	saccharides reactions	Lecture	Daily and monthly exams
6	2	Analyze, apply, understand	Polysaccharides and their structures	Lecture	Daily and monthly exams
7	2	Analyze, apply, understand	Lipids , definition of lipids	Lecture	Daily and monthly exams
8	2	Analyze, apply, understand	Functions of lipids, classification of lipids	Lecture	Daily and monthly exams
9	2	Analyze, apply, understand	Lipids composition, lipids analysis	Lecture	Daily and monthly exams
10	2	Analyze, apply, understand	Soaping, lipids reactions	Lecture	Daily and monthly exams
11	2	Analyze, apply, understand	Amino acids, definition, composition	Lecture	Daily and monthly exams
12	2	Analyze, apply, understand	Classification, Optical activity	Lecture	Daily and monthly exams
13	2	Analyze, apply, understand	Titration (calibration of amino acids)	Lecture	Daily and monthly exams
14	2	Analyze, apply, understand	Amino acid reactions	Lecture	Daily and monthly exams
15	2	Analyze, apply, understand	Proteins, their functions, their structure	Lecture	Daily and monthly exams
16	2	Analyze, apply, understand	Protein structure, protein denaturation	Lecture	Daily and monthly exams
17	2	Analyze, apply, understand	Enzymes, definition, classification	Lecture	Daily and monthly exams

18	2	Analyze, apply, understand	Enzyme work and theories	Lecture	Daily and monthly exams
19	2	Analyze, apply, understand	Factors affecting enzyme action, enzyme kinetics	Lecture	Daily and monthly exams
20	2	Analyze, apply, understand	Vitamins, definition, classification	Lecture	Daily and monthly exams
21	2	Analyze, apply, understand	Types of vitamins and their functions	Lecture	Daily and monthly exams
22	2	Analyze, apply, understand	Nucleotides, their structure	Lecture	Daily and monthly exams
23	2	Analyze, apply, understand	Nitrogenous bases	Lecture	Daily and monthly exams
24	2	Analyze, apply, understand	Nucleic acids	Lecture	Daily and monthly exams

Course Description Form

1. Course Name:
Industrial Chemistry/ class 3
2. Course Code:
annual
3. Semester / Year:
2024/2025
4. Description Preparation Date:
5. Available Attendance Forms:
weekly
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours/ 60 hours
7. Course administrator's name (mention all, if more than one name)

Name: Qader Abdullah Shannak Email: qader.a.shannak@tu.edu.iq

8. Course Objectives

Course Objectives	• Students' knowledge of the oil industry, which is part of the national wealth. • Identify the most important petrochemical industries.

9. Teaching and Learning Strategies

Strategy	1. Lectures 2. Meanings of illustration, such as: the smart board. 3. Use colorful pictures and diagrams taken from websites.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	oil	Oil, theories that explain the origin of the existence of oil	Lecture	weekly and monthly examination
2	2	oil	Chemical composition of crude oil, classification of crude oil, physical properties of crude oil	Lecture	weekly and monthly examination
3	2	oil	Processing crude oil and preparing it for refining	Lecture	weekly and monthly examination
4	2	oil	Petroleum refining operations	Lecture	weekly and monthly examination

5	2	oil	Treatment and purification Processes	Lecture	weekly and monthly examination
6	2	oil	The most important petrochemical industries	Lecture	weekly and monthly examination
7	2	oil	The most important petrochemical industries	Lecture	weekly and monthly examination
8	2	oil	Aromatic materials as raw materials for petrochemical industries	Lecture	weekly and monthly examination
9	2	oil	Aromatic materials as raw materials for petrochemical industries	Lecture	weekly and monthly examination
10	2		Examination		
11	2	oil	Halogen compounds in petrochemical industries	Lecture	weekly and monthly examination

12	2	oil	Halogen compounds in petrochemical industries	Lecture	weekly and monthly examination
13	2	oil	Oxidation processes in petrochemical industries	Lecture	weekly and monthly examination
14	2	oil	Oxidation processes in petrochemical industries	Lecture	weekly and monthly examination
15	2	oil	Oxidation processes in petrochemical industries	Lecture	weekly and monthly examination
16	2	Glass	Glass industry	Lecture	weekly and monthly examination
17	2	Glass	Glass industry	Lecture	weekly and monthly examination
18	2	Corrosion	Corrosion in chemical industries	Lecture	weekly and monthly examination

19	2	Corrosion	Corrosion in chemical industries	Lecture	weekly and monthly examination
20	2	Corrosion	Chemical corrosion theories	Lecture	weekly and monthly examination
21	2	Corrosion	Factors affecting corrosion	Lecture	weekly and monthly examination
22	2		Examination		
23	2	Water	Water and industry	Lecture	weekly and monthly examination
24	2	Cement	Cement industry	Lecture	weekly and monthly examination
25	2	Pollution	Forms of environmental pollution	Lecture	weekly and monthly examination

26	2	Sulfuric acid	Sulfuric acid industry	Lecture	weekly and monthly examination

11.Course Evaluation
Monthly exam: 70% Daily exam: 10% Daily participation: 10% Reports: 10%
12.Learning and Teaching Resources
Required textbooks (curricular books, if any) الكمُاء الصناعيُ، ـلمي عثمْ القادر الخفاجِ، كاظم جباد، هانٍ عمار الذجليٌ، 1991.
13.Main references (sources)
Recommended books and references (scientific journals, reports...) Handbook of Industrial catalysts, Green Corrosion Inhibitors,
Electronic References, Websites https://ar.wikipedia.org/wiki/%D9%86%D9%81%D8%B7

Course Description Form

Course name .1
Third Stage - Educational Guidance
Course code .2
EPS312
Semester/Year .3
annual
Date this description was prepared .4
2025-1-20
Available forms of attendance .5
My presence
(Number of study hours (total) / Number of units (total .6
hours theory Number of units 4 2
(if more than one name is mentioned) Name of the course supervisor .7

Name :Dr. Faten Nawaf

Course objectives .8

• Educational guidance is known • Distinguish between educational guidance and psychological guidance • Understands the relationship between counseling and .ychotherapyps • Knows the foundations of psychological and educational guidance	Subject objectives

Teaching and learning strategies .9

Theoretical lectures, electronic lectures, .daily exams, monthly exams	Strategy

Course Structure .10

Evaluation method	Learning method	Name of the unit or topic	Required learning comesout	Watches	The week
Daily and monthly exams	The lecture Discussion	Introduction to educational will	Analyze, apply, understand	2 theoretical	First week Second week
Daily and monthly exams	The lecture Discussion	Definitions in psychological and educational guidance	,Analyze apply, understand	2 theoretical	The third week Week 4
ly and Dai monthly exams	The lecture Discussion	The relationship between counseling and psychotherapy	Analyze, apply, understand	2 theoretical	Week 5 Week 6
Daily and monthly exams	The lecture Discussion	The difference between psychological will and psychotherapy	Analyze, apply, understand	2 theoretical	The seventh week Week 8
Daily and monthly exams	The lecture Discussion	Counseling Theories	Analyze, apply, dunderstan	2 theoretical	Week 9 The tenth week
Daily and	The lecture	Self theory	Analyze,	2	Week eleven

monthly exams	Discussion		apply, understand	theoretical	twelfth week
Daily and monthly exams	The lecture Discussion	behavioral theory	Analyze, ,apply understand	2 theoretical	thirteenth week Fourteenth week
Daily and monthly exams	The lecture Discussion	Trait and factor theory	Analyze, apply, understand	2 theoretical	Week 15 Week 16
Daily and monthly exams	The lecture Discussion	Williamson 's Guidance Goals	,Analyze apply, understand	2 theoretical	Seventeenth week th week18
Daily and monthly exams	The lecture Discussion	Psychoanalytic theory	Analyze, apply, understand	2 theoretical	th week19 Week 20
Daily and monthly exams	The lecture Discussion	Emotional therapy theory	Analyze, apply, understand	2 theoretical	-Week twenty one -Week twenty otw

Course Evaluation .11	
The grade is distributed out of 100 according to the tasks assigned to the student, .oral, monthly and written exams, reports, etc ,such as daily preparation, daily	
Learning and teaching resources .12	
Educational guidance	(Required textbooks (methodology if any
	(Main References (Sources
	Recommended supporting books and (...references (scientific journals, reports
	Electronic references, websites

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first week and the second week	3 practical	The lecture	Kinetics	Analyze, apply, understand	Daily and monthly exams

The third week and Fourth week	3 practical	The lecture	Decomposition of hydrogen peroxide	Analyze, apply, understand	Daily and monthly exams
The fifth week and Sixth week	3 practical	The lecture	Reaction of supine	Analyze, apply, understand	Daily and monthly exams
The seventh week and The eighth week	3 practical	The lecture	The effect of temperature on the reaction rate	Analyze, apply, understand	Daily and monthly exams
The ninth week andThe tenth week	3 practical	The lecture	Hydrolysis of ethyl	Analyze, apply, understand	Daily and monthly exams
The tenth week andThe twelfth week	3 practical	The lecture	Determination of order	Analyze, apply, understand	Daily and monthly exams
The thirteenth week andThe fourteenth week	3 practical	The lecture	Sapoin acetate electric	Analyze, apply, understand	Daily and monthly exams
The fifteenth week and Sixteenth week	3 practical	The lecture	Titration	Analyze, apply, understand	Daily and monthly exams
The seventeenth and week Eighteenth eighteenth	3 practical	The lecture	Absorption	Analyze, apply, understand	Daily and monthly exams

The nineteenth week and week twen	3 practical	The lecture	Electrical	Analyze, apply, understand	Daily and monthly exams
Twenty-second week	3 practical	The lecture	Study Photo kinetic	Analyze, apply, understand	Daily and monthly exams

11-Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ..... etc
12- Reference \ Atkins' physical chemistry 12th edition ,Chemical Kinetic , Chemical physical and electric.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first week and the second week	3 practical	The lecture	Nitration of Aromatic Hydrocarbons	Analyze, apply, understand	Daily and monthly exams
The third week and Fourth week	3 practical	The lecture	Reduction of Nitro Compounds	Analyze, apply, understand	Daily and monthly exams

The fifth week and Sixth week	3 practical	The lecture	Acetylation of Aromatic Amines	Analyze, apply, understand	Daily and monthly exams
The seventh week and The eighth week	3 practical	The lecture	Hydrolysis of Acetanilide	Analyze, apply, understand	Daily and monthly exams
The ninth week andThe tenth week	3 practical	The lecture	Preparation of Aniline	Analyze, apply, understand	Daily and monthly exams
The tenth week andThe twelfth week	3 practical	The lecture	Diazotization of Amines	Analyze, apply, understand	Daily and monthly exams
The thirteenth week andThe fourteenth week	3 practical	The lecture	Coupling Reaction of Diazonium Salts	Analyze, apply, understand	Daily and monthly exams
The fifteenth week and Sixteenth week	3 practical	The lecture	Substitution Reaction of Diazonium Salts	Analyze, apply, understand	Daily and monthly exams
The seventeenth and week Eighteenth eighteenth	3 practical	The lecture	Hydrolysis of Diazonium Salt	Analyze, apply, understand	Daily and monthly exams
The nineteenth week and week twen	3 practical	The lecture	Sandmeyer's Reaction	Analyze, apply, understand	Daily and monthly exams

Twenty-second week	3 practical	The lecture	Sulfonation of Aromatic mines	Analyze, apply, understand	Daily and monthly exams

11-Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ..... etc
12- Reference \. Organic synthesis the disconnection approach Mechanism in advanced organic chemistry R. p. Narin

Course Description Form

Course name .1
Coordination Chemistry Practical
rse codeCou .2
Semester/Year .3
2025-Academic year 2024
Date this description was prepared .4
2025-1-15
Available forms of attendance .5
Live attendance in classrooms
(Number of study hours (total) / Number of units (total .6
units 4 / hours of practical work 8
(Name of the course supervisor (if more than one name is mentioned .7
Lama Abdel Qader .M.D :Faisal, Name Mishref Nouri .Name: M.M
Course objectives .8

Explaining to students how to -4 **. prepare solid and liquid solutions** **Introducing students to how to -5** **re melting, boiling and measu** **.recrystallization points**	Providing students with -1 general information about **And** .inorganic chemistry **coordination** methods to ntroduce studentsI -2 of expressing concentrations .and give laws how to Explaining to students -3 deal with chemicals and tools in the laboratory
Teaching and learning strategies .9	
Practical application, daily exams, monthly exams	Strategy

Course Structure .10

Evaluation method	Learning hodmet	Name of the unit or topic	Required learning outcomes	Watches	The week
Exams, homework, lab reports, scientific research	**My presence**	**Knowing the chemical elements Knowledge of handling laboratory materials and tools Knowledge of preparing coordination complexes Preparation -of copper -cobalt zinc -nickel complex**	**analysis, application, understanding**	**90 hours**	**weeks 30**

Course Evaluation .11
The grade is distributed out of 100 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	
Fundamentals of coordination chemistry -1 Mohamed Magdy by Wasil	(Required textbooks (methodology if any
	(Main References (Sources
	Recommended supporting books and (...references (scientific journals, reports
	ic references, websitesElectron

Course description form

1. Course Name
Biochemistry Practical
2. Course Code
3. Semester/year
Academic year 2023-2024
4. Date this description was prepared
2-21-2024
5. Available attendance forms

Direct attendance in classrooms	
6. Number of study hours (total) / number of units (total)	
7 - Practical hour / 4 units	
8. Name of the course administrator (if more than one name is mentioned)	
Name: M. M. Shaima Ahmed Saleh	
8. Course objectives	
1- An explanation for students about preparing the chemical reagent 2- Introducing students to how to conduct chemical experiments in limited quantities, without waste	Providing students with general information about biochemistry Introducing students to methods for preparing test solutions Explaining to students how to properly handle hazardous chemicals and tools in the laboratory An explanation for students about preparing the chemical reagent Introducing students to how to conduct chemical experiments in limited quantities, without waste
9. Teaching and learning strategies	
	1- Introducing the student to laboratory techniques in the subject of biochemistry. 2- Introducing the student to

	methods for preparing laboratory chemicals 3- Introducing the student to the dangers of chemical and laboratory materials.

10. Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Homework exams, laboratory reports, scientific research	**My presence**			**90 hours**	**week 30**

11. Course evaluation

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

12. Learning and teaching resources

(Practical biochemistry and clinical) Written by Professor Dr. Abbas Daws Matar Al-Maliki (Introduction to biochemistry) Written by Professor Dr.	Required prescribed books (methodology, if any).

Khawla Ahmed Al-Flih	
(Practical Biochemistry) Written by Professor Dr. Issa Abdel Saadawi	Main references (sources)
Abousalah, K. and Alnaser, A., 1996, Principles of Practical Biochemistr	Recommended supporting books and references (scientific journals, reports...)
Farid Shokry Ataya,2007, Practical Biochemistry. AlRoshd Publisher, Riyadh Saudi Arabia. - Milio, F. R. and Loffredo, W. M., 1995, Qualitative Testing for Amino Acids and Proteins, Modular Laboratory Program in Chemistry, REAC 44	Electronic references, Internet sites ....

Course Description Form

1. Course Name:
Organic Spectral Identification
2. Course Code:
CH400
3. Semester / Year:
2nd / 2024
4. Description Preparation Date:
2024-6-6 AD

5. Available Attendance Forms:

My theoretical presence

6. Number of Credit Hours (Total) / Number of Units (Total)

2/2

7. Course administrator's name (mention all, if more than one name)

Name: Prof. Ghazwan Hassan Abdul Wahab Al-Sumaidaie
Email : drghazwan75@tu.edu.iq

8. Course Objectives

Course Objectives	Gaining cognitive skills Gaining scientific skills ectual skillsGaining intell

9. Teaching and Learning Strategies

Strategy	• .Explaining lectures in the form of diagrams • Students' participation in presenting and solving diagnostic .problems for the subject within the flipped classroom program

10. Course Structure

The week	2 hours + 2 hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	2	UV-Vis spectroscopy, basic devices, and nature of UV spectroscopy	UV-Vis Spectroscopy, Basic Devices and Nature of UV Spectroscopy	Lecture + discussion + training	Exam
2	2	Qualitative aspects of UV spectroscopy	Qualitative Aspects of UV Spectroscopy	Lecture + discussion + training	Exam
3	2	UV absorber band classification	UV Absorber Band Classification	Lecture + discussion + training	Exam
4	2	UV spectroscopy, chromophores, degree of unsaturation, coupling, and factors affecting the location of the bundles	UV Spectroscopy: Chromophores, Degree of Unsaturation, Coupling, and Factors Affecting Bundles Location	Lecture + discussion + training	Exam
5	2	Rules and rules for coupled systems	Rules for Coupled Systems	Lecture + discussion + training	Exam
6	2	Infrared spectroscopy and important infrared chromophores	Infrared Spectroscopy and Important Infrared Chromophores	Lecture + discussion + training	Exam
7	2	Alkanes and alkenes	Alkanes, Alkenes,	Lecture +	Exam

			Alkynes	discussion + training	
8	2	Aromatic hydrocarbons and heterocyclic aromatic compounds	Aromatic Hydrocarbons, Heterocyclic Aromatic Compounds	Lecture + discussion + training	Exam
9	2	Halogen compounds	Halogen Compounds (fluorine, chlorine, bromine, iodine)	Lecture + discussion + training	Exam
10	2	Ethers and related compounds	Ethers and Related Compounds	Lecture + discussion + training	Exam
11	2	Alcohols and phenols, and ethers and epoxides	Alcohols, Phenols, Ethers, Epoxides	Lecture + discussion + training	Exam
12	2	Nitrogen compounds	Nitrogen Compounds	Lecture + discussion + training	Exam
13	2	Sulfur compounds and carbonyl compounds	Sulfur Compounds and Carbonyl Compounds	Lecture + discussion + training	Exam
14	2	Interferences in infrared spectra	Interferences in Infrared Spectra	Lecture + discussion + training	Exam
15	2	Spectral exercises	Spectral Exercises	Lecture + discussion + training	Exam
16	2	Proton NMR spectrum	Proton NMR Spectrum, Chemical Shifts	Lecture + discussion + training	Exam
17	2	Alkanes, alkenes, alkynes	Alkanes, Alkenes, Alkynes	Lecture + discussion + training	Exam
18	2	Aromatic hydrocarbons and heterocyclic aromatic compounds	Aromatic Hydrocarbons, Heterocyclic Aromatic Compounds	Lecture + discussion + training	Exam
19	2	Halogen compounds	Halogen Compounds	Lecture + discussion + training	Exam
20	2	Alcohols, ethers and related compounds	Alcohols, Ethers, and Related Compounds	Lecture + discussion + training	Exam
21	2	Nitrogen compounds and sulfur compounds	Nitrogen Compounds, Sulfur Compounds	Lecture + discussion + training	Exam
22	2	Aldehydes, ketones, and carboxylic acids	Aldehydes, Ketones, Carboxylic Acids	Lecture + discussion + training	Exam

23	2	Esters and lactones	Esters, Lactones	Lecture + discussion + training	Exam
24	2	Amides, lactams, amino acids	Amides, Lactams, Amino Acids	Lecture + discussion + training	Exam
25	2	Spectral exercises	Spectral Exercises	Lecture + discussion + training	Exam
26	2	Mass Spectrometry	Mass Spectrometry, Ionization Processes	Lecture + discussion + training	Exam
27	2	Mass spectral data	Mass Spectral Data	Lecture + discussion + training	Exam
28	2	Representation of fragmentation spectra	Representation of Fragmentation Spectra	Lecture + discussion + training	Exam
29	2	Factors governing fragmentation spectra	Factors Governing Fragmentation Spectra	Lecture + discussion + training	Exam
30	2	Interpretation of fragmentation spectra	Fragmentation Spectra Interpretation Exercises	Lecture + discussion + training	Exam

11. Course Evaluation

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

- Attendance and participation: 5%
- Daily exams: 5%
- Reports: 5%
- Written Exam: 85%

12. Learning and Teaching Resources
Main references (sources)

1. Spectrometric Identification of Organic Compounds" by Robert M. Silverstein, Francis X. Webster, and David J. Kiemle , 7th edition, published by John Wiley & Sons in 2014.
2. "Introduction to Spectroscopy" by Donald L. Pavia, Gary M. Lampman , George S. Kriz , and James R. Vyvyan , 4th edition, published by Cengage Learning.

Required textbooks (curricular books, if any)

1. "Organic Spectroscopy" by William Kemp, 2nd edition, published by Palgrave Macmillan in 1995.

2. "Introduction to Organic Spectroscopy" by Laurence M. Harwood and Timothy D. W. Claridge , 2nd edition, published by Oxford University Press in 1999. 3. "Organic Structures from Spectra" by Leslie D. Field, Sev Sternhell , and John R. Kalman , 5th edition, published by Wiley-Blackwell in 2012. 4. "Structure Elucidation by NMR in Organic Chemistry: A Practical Guide" by Eberhard Breitmaier , 3rd edition, published by Wiley-VCH in 2002.
Recommended books and references (scientific journals, reports...)
1 "NMR Spectroscopy Explained: Simplified Theory, Applications and Examples for Organic Chemistry and Structural Biology" by Neil E. Jacobsen, 1st edition, published by Wiley in 2007. 2 "Interpretation of Organic Spectra" by Y.R. Sharma, 2nd edition, published by CRC Press in 2011.
Electronic References, Websites
1 https://sdbs.db.aist.go.jp/sdbs/cgi-bin/cre_index.cgi 2 National Digital Library of India 3 Open Library 4 ScienceOpen 5 Internet Archive

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Course Description Form .....

1. Course Name:
Instrumental analysis
2. Course Code:
3. Semester / Year:
Forth stage
4. Description Preparation Date:
19/2/2024
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)

120 h/

7. Course administrator's name (mention all, if more than one name)

Name:
Email:

8. Course Objectives

Course Objectives	•Familiarity with the types of electromagnetic radiation •..... Familiarity with the methods of automatic analysis • Familiarity with the main parts of the devices

9. Teaching and Learning Strategies

Strategy	

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	4	The student should know the importance of analytical chemistry.	Analytical chemistry and the concept of instrumental analysis	Lecture method.	Discussion during the lecture.
3-5	4	The student learns the types of rays and their interactions.	Electromagnetic radiation and its interference with matterail	Lecture method.	Discussion during the lecture.

7-9	6	Knowing the importance of radiation absorption	Quantitative analysis of electromagnetic radiation absorption	Lecture method.	Discussion during the lecture.
10-13	6	The student should learn about the most important parts of the different devices.	Spectrometers and their components	Lecture method.	Discussion during the lecture.
14-16	6	Applications of absorption measurements in the ultraviolet and visible region	The importance of spectral applications	Lecture method.	Discussion during the lecture.
17	2	Analysis by scattering and turbidity measurement	The student learns a general introduction to scattering methods.	Lecture method.	Discussion during the lecture.
18-20	6	Atomic Spectroscopy - Atomic Absorption	The student learns about the methods of atomic absorption and emission.	Lecture method.	Discussion during the lecture.
21-23	4	Analysis by electrochemical methods.	The student learns about the electrochemical analysis method.	Lecture method.	Discussion during the lecture.
24-26	4	voltametric applications.	The student learns the types of voltametric methods	the lecture method	solving mathematical examples

27-28	4	polygraphic applications.	The student learns how to calculate the half-voltage of	the lecture method	solving mathematical examples
29-30	4	Deposition Electrostatic deposition	The student learns the mathematical relationships related to electrostatic	Lecture method.	Discussion during the lecture.

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .....etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Omar Salih Hasan

Instrumental chemical analysis
Dr. Abdul Mohsen Al-Haidari

Basics of Automated Analysis
Dr. Zuhair Matti Al-Qasir

Course Description Form

Review of the performance of higher education institutions ((academic program review))

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the must be linked to the programme available. It learning opportunities .description

Tikrit University	1. Educational institution
College of Education for Pure Sciences/Chemistry Department/Third Stage	2. University Department / Center
Biochemistry	3. Course Name/Code
	4. Programs that include
	5. le attendance formsAvailab
	6. Chapter/Year
theoretical 0	7. Number of study hours (total)
	8. Date this description was prepared
9. Course objectives	
1- Increase knowledge on the topic 2- Analyze and synthesize knowledge elements with prior knowledge	

10. teaching and learning methods and assessment ,Learning outcomes
Knowledge and understanding -A cognitive increase -A1 Linking previous and current knowledge with each other -A2 Analysis -A3 Installation and application -A4 -A5 -A6
specific skills-Subject -b Increase cognitive skills - B1 Increase practical skills - B2 - 0 B
Teaching and learning methods
1- The lecture 2- Discussion 3- Scientific laboratory 4-
Evaluation methods
1- Exams 2- 3-
Thinking skills -C Understanding -A1 Analysis -A2 Composition -A3 Deduction -A4
Teaching and learning methods
1- The lecture 2- Scientific laboratory 3- 4-
Evaluation methods
1- Exams

General and transferable skills (other skills related to employability and -D .(personal development

Preparing reports -D1
-D2
-D3
-D4

11. Course structure					
Evaluation method	Teaching method	Name of unit/course or topic	Required learning outcomes	Watches	The week
Exam	The lecture	**cell**	Understand, analyze and apply .the topic	2	1.
Exam	The lecture	**cell**	Understand, analyze and apply .the topic	2	2.
Exam	The lecture	**Carbohydrates**	Understand, analyze and apply .the topic	2	3.
Exam	The lecture	**Carbohydrates**	Understand, analyze and apply .the topic	2	4.
Exam	The lecture	**Carbohydrates**	Understand, analyze and apply .picthe to	2	5.
Exam	The lecture	**Carbohydrates**	Understand, analyze and apply .the topic	2	6.
Exam	The lecture	**Carbohydrates**	Understand, analyze and apply .the topic	2	7.
Exam	The lecture	**Fats**	Understand, analyze and apply .the topic	2	8.
Exam	The lecture	**Fats**	Understand, analyze and apply .the topic	2	9.
Exam	The lecture	**Fats**	Understand, analyze and apply .the topic	2	10.
Exam	The lecture	**Fats**	Understand, analyze and apply .the topic	2	11.
Exam	The lecture	**Amino acids and peptides**	Understand, analyze and apply .the topic	2	12.
Exam	The lecture	**Amino acids and peptides**	Understand, analyze and apply .the topic	2	13.
Exam	The lecture	**Amino acids and peptides**	Understand, analyze and apply .the topic	2	14.
Exam	The lecture	**Amino acids and peptides**	Understand, analyze and apply .the topic	2	15.
Exam	The lecture	**Proteins**	Understand,	2	16.

			analyze and apply .the topic		
Exam	The lecture	**Proteins**	Understand, analyze and apply .the topic	2	17.
Exam	The lecture	**Nucleotides and nucleic dsaci**	Understand, analyze and apply .the topic	2	18.
Exam	The lecture	**Nucleotides and nucleic acids**	Understand, analyze and apply .the topic	2	19.
Exam	The lecture	**Enzymes**	Understand, analyze and apply .the topic	2	20.
Exam	The lecture	**Enzymes**	Understand, analyze and apply .the topic	2	21.
Exam	The lecture	**Enzymes**	Understand, analyze and apply .the topic	2	22.
Exam	The lecture	**Vitamins**	Understand, analyze and apply .the topic	2	23.
Exam	The lecture	**Vitamins**	Understand, analyze and apply .the topic	2	24.
Exam	The lecture	**aminsVit**	Understand, analyze and apply .the topic	2	25.
Exam	The lecture	**Vitamins**	Understand, analyze and apply .the topic	2	26.
Exam	The lecture	**Vitamins**	Understand, analyze and apply .the topic	1	27.
Exam	The lecture	**Vitamins**	Understand, analyze and apply .the topic	1	28.
Exam	The lecture	**Hormones**	Understand, yze and apply anal .the topic	2	29.
Exam	The lecture	**Hormones**	Understand, analyze and apply .the topic	2	30.
Exam	The lecture	**Hormones**	Understand, analyze and apply .the topic	2	31.
Exam	reThe lectu	**Hormones**	Understand, analyze and apply	2	32.

			.the topic		

12. Infrastructure	
	:Required readings ▪ Basic Texts ▪ Course books ▪ Other
	including,) Special requirements for example, workshops, periodicals, software, and (websites
	including, for) Social services example, guest lectures, field vocational training, and (studies

13. Acceptance	
	Prerequisites
	least number of students
	The largest number of students

Course Description Form

Course name .1
Fourth Stage -Industrial Chemistry
Course code .2
Semester/Year .3
annual
was prepared Date this description .4
2024/20/10
Available forms of attendance .5
Live attendance in classrooms

(Number of study hours (total) / Number of units (total .6	
practical / 2 units 3	
(Name of the course supervisor (if more than one name is mentioned .7	
: r Abdullah Shannak EmailName: QadeQader.a.shannak@tu.edu.iq	
Course objectives .8	
• Introducing the student to the concept of industrial chemistry • industrial processes • Knowing the most important types of chemical industries d using available in Iraq an industrial technology • Deep understanding of chemical processes in terms of chemical reactions	Subject objectives
Teaching and learning strategies .9	
Daily assignments, reports and tests -1 Daily diverse analytical and interpretive -2 .essonquestions during the l Guiding students to benefit from -3 external resources available around the .course	Strategy

Course Structure .10

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Watches	The week
General questions	Theoretical practical + scientific + discussion		ral Gene introduction to the importance of industrial chemistry	2 theoretical 2 + practical	1
Discussion and general questions	Theoretical practical + scientific + discussion		Types of chemical industrial processes	2 theoretical 2 + practical	2
Discussion	Theoretical		Polymers,	2	3

and general questions	practical + scientific + discussion		polymer classification	theoretical 2 + practical	
Daily surprise discussion and exam	Theoretical practical + scientific + cussiondis		Naming polymers	2 theoretical 2 + practical	4
Discussion only	Theoretical practical + scientific + discussion	Methods for determining the penal weights of polymers	Molecular weight of polymers	2 theoretical 2 + practical	5
Daily surprise test	Theoretical practical + scientific + discussion		ical Phys properties of polymers	2 theoretical 2 + practical	6
Discussion nd a general questions	Theoretical practical +	Free radical chain polymerization classification	Classification of polymerization reactions	2 theoretical 2 + practical	7
Daily exam	Practical + theoretical scientific + discussion	Ionic addition polymerization coordination + polymerization	Classification of polymerization reactions	2 theoretical 2 + practical	8
Discussion only	Practical + theoretical scientific + discussion		n Condensatio polymerization reactions	2 theoretical 2 + practical	8
Discussion and general questions	Practical + theoretical		Resins + Plastics	2 theoretical 2 + practical	9
____	Practical + ltheoretica	_____	_____	First month exam	10
Discussion and general questions	Practical + theoretical		The most important plastic industries + natural and synthetic rubber	2 theoretical 2 + practical	11
Daily	Practical +	fibers +	Fiber industry	2	12

surprise test	retical theo scientific + discussion	synthetic fibers		theoretical 2 + practical	
Discussion and general questions	Practical + theoretical		Colored materials	2 theoretical + practical 2	13
Discussion and general questions	Practical + theoretical scientific + ondiscussi		dye manufacturing	2 theoretical 2 + practical	14
_____	Practical + theoretical	_____	_____	Second monthly exam	15
Discussion and scientific questions	Theoretical practical +		Corrosion and its theories	2 theoretical 2 + practical	16
____	_____	_____	_____	year -Mid vacation	17
Discussion and scientific questions	Practical + theoretical scientific + discussion		Soap and detergent industry	2 theoretical 2 + practical	18
cussion Dis and scientific questions	Practical + theoretical		Pesticide industry and its types	2 theoretical 2 + practical	19
Daily surprise test	Practical + theoretical		Insecticides, jungle, burrowers	2 theoretical 2 + practical	20
Discussion only	Practical + theoretical		Cement industry, raw materials	2 theoretical 2 + practical	21
Discussion and general questions	Practical + theoretical scientific + discussion		Types of cement and its specifications	2 retical theo 2 + practical	22
_____	Practical + theoretical	_____	____	Third month exam	23

Discussion and scientific questions	**ical + Pract theoretical scientific + discussion**		**Paper making**	**2 theoretical 2 + practical**	**24**
Discussion only	**Practical + theoretical scientific + discussion**		**Sugar industry**	**2 theoretical 2 + practical**	**25**
Discussion and scientific questions	**Practical + icaltheoret**		**Oil industry**	**2 theoretical 2 + practical**	**26**
Daily surprise test	**Practical + theoretical**		**Petroleum industry**	**2 theoretical 2 + practical**	**27**
Discussion only	**Practical + theoretical**		**Methods of petroleum production and its specifications, production of some halogen oundscomp**	**2 theoretical 2 + practical**	**28**
			Fourth monthly exam	**2 theoretical 2 + practical**	**29**
	Practical + theoretical			**Final Exam**	**30**

Course Evaluation .11
nt, The grade is distributed out of 100 according to the tasks assigned to the stude .such as daily preparation, daily, oral, monthly and written exams, reports, etc

participation %10 Reports %10 practical %30 theoretical %50	
Learning and teaching resources .12	
al Industrial Chemistry and Industri Pollution Dr. Omar Musa Ramadan	(Required textbooks (methodology if any
Industrial Chemistry. Dr. Salwa Abdel Qader .Industrial chemistry. And time Industrial Chemistry. Korkis Abdul Adam	(Main References (Sources
Some applied references in industrial chemistry, especially master's theses, doctoral dissertations , and research .published on the Internet	Recommended supporting books and (...references (scientific journals, reports
	Electronic references, websites

Course Description Form

Course name .1
Phase Four - Measurement and Evaluation
Course code .2

EPS411
Semester/Year .3
annual
Date this description was prepared .4
2025-1-20
Available forms of attendance .5
My presence
(Number of study hours (total) / Number of units (total .6
hours theory Number of units 4 2
(Name of the course supervisor (if more than one name is mentioned .7
: Name: Ms. Faten Nawaf Email
Course objectives .8

• Knows the concept of measurement and evaluation • Understands the importance of assessment and measurement ducational processin the e • Understands types of evaluation	Subject objectives
Teaching and learning strategies .9	
Theoretical lectures, electronic lectures, .daily exams, monthly exams	Strategy

Course Structure .10

Evaluation method	Learning method	Name of the topic unit or	Required learning outcomes	Watches	The week
Daily and monthly exams	The lecture Discussion	About the development of measurement and evaluation	Analyze, apply, understand	2 theoretical	First week Second week
Daily and monthly exams	The lecture Discussion	The concept of measurement,	Analyze, ,apply understand	2 theoretical	The third week Week 4

		evaluation, testing and the relationship between them			
Daily and monthly exams	The lecture Discussion	The importance of evaluation and measurement in the onal educati process	Analyze, apply, understand	2 theoretical	Week 5 Week 6
Daily and monthly exams	The lecture Discussion	Types of calendar	Analyze, apply, understand	2 theoretical	The seventh week Week 8
Daily and monthly exams	The lecture Discussion	reparing for P the achievement test	Analyze, apply, understand	2 theoretical	Week 9 The tenth week
Daily and monthly exams	The lecture Discussion	Types of achievement tests	Analyze, apply, understand	2 theoretical	Week eleven twelfth week
Daily and monthly exams	The lecture Discussion	Building achievement tests	Analyze, apply, understand	2 theoretical	thirteenth week Fourteenth week
Daily and monthly exams	The lecture Discussion	Determine student levels	Analyze, apply, understand	2 theoretical	Week 15 Week 16
Daily and monthly exams	The lecture Discussion	Testing methods	Analyze, apply, understand	2 theoretical	Seventeenth week th week18
Daily and monthly exams	The lecture Discussion	True or false test	Analyze, apply, understand	2 theoretical	th week19 Week 20
Daily and monthly exams	The lecture Discussion	Advantages and disadvantages of oral tests	Analyze, apply, understand	2 theoretical	one-tyWeek twen -Week twenty two

Course Evaluation .11
udent, The grade is distributed out of 100 according to the tasks assigned to the st .such as daily preparation, daily, oral, monthly and written exams, reports, etc

Learning and teaching resources .12	
developmental psychology	(Required textbooks (methodology if any
	(Main References (Sources
	Recommended supporting books and (...erences (scientific journals, reportsref
	Electronic references, websites

Course Description Form

1. Course Name:	
View and apply	
2. Course Code:	
3. Semester / Year:	
annual \ **2024-2-21**	
4. Description Preparation Date:	
My presence	
5. Available Attendance Forms:	
.....	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours theory Number of units 4	
7. Course administrator's name (mention all, if more than one name)	
Name:Tahseen Khalid Matne Email: tahseen.khalid@tu.edu.iq	
8. Course Objectives	
Course Objectives	• Knows the duties of a teacher • Explains using modern teaching methods • Takes into account individual differences among students
9. Teaching and Learning Strategies	

Strategy	Theoretical lectures, electronic lectures, daily exams, monthly exams.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	6 hours theory	Analyze, apply, understand	Formulating goals	Lecture Discussion	Daily and monthly exams
Week 2	6 hours theory	Analyze, apply, understand	Designing the annual plan	Lecture	Daily and monthly exams
	6 hours theory		Designing a plan for one semester		Daily and monthly exams
Week 3	6 hours theory	Analyze, apply, understand	Designing a daily plan	Discussion	Daily and monthly exams
Week 4	6 hours theory	Analyze, apply, understand	Formulating test paragraphs	Lecture	Daily and monthly exams
Week 5	6 hours theory	Analyze, apply, understand	Formulating essay tests	Discussion	Daily and monthly exams
Week 6	6 hours theory	Analyze, apply, understand	The personal side of the teacher	Lecture	Daily and monthly exams
Week 7	6 hours theory	Analyze, apply, understand	Visits to schools	Discussion	Daily and monthly exams
Week 8	6 hours theory	Analyze, apply, understand	Visits to schools	Lecture	Daily and monthly exams
Week 9	6 hours theory	Analyze, apply, understand	Visits to schools	Discussion	Daily and monthly exams
Week 10	6 hours theory	Analyze, apply, understand	Visits to schools	Lecture	Daily and monthly exams
Week 11	6 hours theory	Analyze, apply, understand	Visits to schools	Discussion	Daily and monthly exams
Week 12	6 hours theory	Analyze, apply, understand	Visits to schools	Lecture	Daily and monthly exams
Week 13	6 hours theory	Analyze, apply, understand	Visits to schools	Discussion	Daily and monthly exams
Week 14	6 hours theory	Analyze, apply, understand	Visits to schools	Lecture	Daily and monthly exams
Week 15	6 hours theory	Analyze, apply, understand	Visits to schools	Discussion	Daily and monthly exams
Week 16	6 hours theory	Analyze, apply, understand	Visits to schools	Lecture	Daily and monthly exams
Week 17	6 hours theory	Analyze, apply, understand	Formulating goals	Discussion	Daily and monthly exams

Week 18	6 hours theory	Analyze, apply, understand	Designing the annual plan	Lecture	Daily and monthly exams
Week 19	6 hours theory	Analyze, apply, understand	Designing a plan for one semester	Discussion	Daily and monthly exams
Week 20	6 hours theory	Analyze, apply, understand	Designing a daily plan	Lecture	Daily and monthly exams

Course Description Form

Course name .1	
Practical automated analysis	
Course code .2	
CH17	
Semester/Year .3	
annual	
Date this description was prepared .4	
2024-2-21	
Available forms of attendance .5	
My presence	
(Number of units (total / (Number of study hours (total .6	
hours of practical work Number of units 9 6	
(Name of the course supervisor (if more than one name is mentioned .7	
Name:M.M. Mohannad Faisal Shareef Email: mohannad.f.shareef@tu.edu.iq	
Course objectives .8	
• Know what is automated analysis? • Applies to spectral devices • Conducts practical experiments in the laboratory. • Ability to analyze data	objectives Subject
Teaching and learning strategies .9	
Theoretical lectures, electronic	Strategy

.exams lectures, daily exams, monthly	

Course Structure .10					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Watches	The week
Daily exams Monthly exams	Lecture and discussion	**Spectrophoto metric determination of ferric thiocyanate**	Analyze, apply, understand	hours 6	First week
Daily exams Monthly exams	Lecture and discussion	**Spectrophoto metric determination of nitrite using nitration and coupling reactions**	Analyze, apply, understand	hours 6	The second week
Daily exams Monthly exams	Lecture and discussion	**Spectrophoto metric determination of manganese by potassium periodate oxidation**	apply, ,Analyze understand	hours 6	The third week
Daily exams Monthly exams	Lecture and discussion	**Spectrophoto metric determination of ferrous -1,10 using phenanthrolin e reagent and finding accuracy and agreement**	Analyze, apply, understand	hours 6	Week 4
Daily exams Monthly exams	Lecture and discussion	**Spectroscopic determination of glycine using chloranil and finding the nature of the**	Analyze, apply, understand	hours 6	Week 5

		complex and stability its constant			
Daily exams Monthly exams	Lecture and discussion	**Photometric determination of benzoic acid**	Analyze, apply, understand	hours 6	Week 6
Daily exams Monthly exams	Lecture and discussion	**Photometric correction with EDAT**	,Analyze, apply understand	hours 6	The seventh week
Daily exams Monthly exams	Lecture and discussion	**Iron determination by volumetric titration with EDTA**	Analyze, apply, understand	hours 6	Week 8
Daily exams Monthly exams	Lecture and discussion	**Photometric determination of copper**	Analyze, apply, understand	hours 6	Week 9
Daily exams Monthly exams	Lecture and discussion	**Determination of sulfate by nephelometry**	Analyze, apply, understand	hours 6	The tenth week
Daily exams Monthly exams	Lecture and discussion	**Determination of sodium and potassium using flame emission technique**	Analyze, apply, understand	hours 6	Week eleven
Daily exams Monthly exams	Lecture and discussion	**Determination of calcium and barium using flame emission technique**	Analyze, apply, understand	hours 6	twelfth week
Daily exams Monthly exams	Lecture and discussion	**Potentiometric determination of iodide**	Analyze, apply, understand	hours 6	thirteenth week
Daily	Lecture and	**Determination**	apply, ,Analyze	hours 6	Fourteenth week

exams Monthly exams	discussion	**of vitaminC in pharmaceutical tablets using polarography technique**	understand		
Daily exams Monthly exams	Lecture and discussion	**Determination of chloride and iodide by potentiometric titration**	Analyze, apply, understand	hours 6	Week 15
Daily exams Monthly exams	Lecture and discussion	**Spectrophotometric determination of ferric thiocyanate**	Analyze, apply, understand	hours 6	Week 16
Daily exams Monthly exams	Lecture and discussion	**Spectrophotometric determination of nitrite using nitration and coupling reactions**	,Analyze, apply understand	hours 6	Seventeenth week
Daily exams Monthly exams	Lecture and discussion	**Spectrophotometric determination of manganese by potassium periodate oxidation**	Analyze, apply, understand	hours 6	th week18
Daily exams Monthly exams	Lecture and discussion	**Spectrophotometric determination of ferrous -using 1,10 phenanthroline reagent and finding accuracy and agreement**	Analyze, apply, understand	hours 6	th week19
Daily	Lecture and	**Spectroscopic**	Analyze, apply,	hours 6	Week 20

exams Monthly exams	discussion	**determination of glycine using chloranil and finding the nature of the complex and its stability constant**	understand		

Evaluation Course .11	
The grade is distributed out of 100 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	
Practical automated analysis	(Required textbooks (methodology if any
Haidari-Analysis by Dr. Mohsen Al	(Main References (Sources
	Recommended supporting books and (...references (scientific journals, reports
Practical video experiments on websites	Electronic references, websites

Course Description Form

Course name .1
industrial chemistry Practical
Course code .2
Semester/Year .3
2025-Academic year 2024
Date this description was prepared .4
2024-2-21
Available forms of attendance .5

attendance in classrooms Live
(Number of study hours (total) / Number of units (total .6
hours of practical work / 4 units 8
(Name of the course supervisor (if more than one name is mentioned .7
Name: M.M.Omar Watheq Hala
Course objectives .8

Explaining to students how to -9 . prepare solid and liquid solutions Introducing students to the -10 correction process and how it is carried out in the lab	Providing students with -6 general information about . chemistry industrial soap to Introducing students -7 methods preparation how to Explaining to students -8 deal with chemicals and tools in the laboratory
Teaching and learning strategies .9	
	Introducing the student to -1 laboratory techniques in . industrial chemistry Introducing the student to the -2 methods of preparing . laboratory chemicals Introducing the student to the -3 risks of chemicals and . laboratory materials

Course Structure .10

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Watches	The week
Exams, homework, lab reports, scientific research	**My presence**			**90 hours**	**weeks 30**

Course Evaluation .11	
according to the tasks assigned to the student, The grade is distributed out of 100 .such as daily preparation, daily, oral, monthly and written exams, reports, etc	
Learning and teaching resources .12	
	(Required textbooks (methodology if any
Industrial Chemistry -2 Book Practical Industrial -3 Chemistry for the Fourth Stage: Asst. Prof. Dr. Maha Abdel Wahab and Asst. Dr. Basma Jafar Ahmed	(Main References (Sources
	Recommended supporting books and (...references (scientific journals, reports
	esElectronic references, websit

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	