Academic Program Description

University Name: **University of Anbar**
Faculty/Institute: **Applied science – Heet**
Scientific Department: **Environment**
Academic or Professional Program Name: Bachelor of Environmental Sciences
Final Certificate Name: Bachelor's degree in Environmental Sciences
Academic System: semester
Description Preparation Date: **10/10/2023**
File Completion Date: **12/10/2023**

Signature:
Head of Department Name:
Atyaf Abed Alghar Younse
Date:

Signature:
Scientific Associate Name:
Rasem Frage Muslem
Date:

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Date:
Signature:

Approval of the Dean

1. Program Vision

Scientific development, administrative excellence, leadership in the field of university education and scientific research, and the preparation of competencies with a high level of knowledge of environmental issues who possess professional and applied experience and the ability to keep pace with environmental challenges.

2. Program Mission

Continuous improvement in the scientific and research process through developing and diversifying educational programs in light of international standards and creating a stimulating environment for learning and creativity to serve society and its environmental issues and to meet the requirements of the market economy.

3. Program Objectives

1. Follow an initiative-based methodology and think about the future needs of the community.

2- Preparing an experienced graduate capable of conducting laboratory measurements of the environment, including water, air, and soil.

3- Preparing a specialized graduate who is familiar with the theoretical and practical foundations of environmental sciences and their field applications, and providing him with the experience required by the future field of work.

4- Preparing a graduate who keeps pace with scientific developments, follows up on and is familiar with the latest technical developments regarding how to work on devices related to the environment and environmental pollution.

5- Preparing a generation committed to the principles and noble values of its society and belonging to its homeland and nation.

6- Instilling the importance of science and education in the graduate and how he will serve him and his country.

7- Opening channels of partnership and cooperation between the department

and the state and private sectors for the purpose of increasing the alignment between the quality of the department's outputs and the actual and practical requirements of the available jobs.

4. **Program Accreditation**
Nothing

5. **Other external influences**
Nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	**60**	**149**	**40.26**	
College Requirements	**YES**			
Department Requirements	**YES**			
Summer Training	**There are**			
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical

8. Expected learning outcomes of the program

Knowledge	
Environment professionals	**Learning outcomes from the program include the ability to identify and measure cases of environmental pollution of various types and treatment methods.**

Skills	
Learning outcomes 2	Learning outcomes statement 2
Learning outcomes 3	Learning outcomes statement 3
Ethics	
Learning outcomes 4	Learning outcomes statement 4
Learning outcomes 5	Learning outcomes statement 5

9. Teaching and Learning Strategies

Teaching and Learning Strategies and methods adopted in the implementation of the program in general.

10. Evaluation methods

Implemented at all stages of the program in general.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
professor					Uday Sabah Asker	
professor					Bassm al deen al Kateeb Husham	
Assistant Professor					Rabah Salem Sharef	
Assistant Professor					Sudedd Usama Al Kateeb	
Teacher					Harteth Abed Al Rahman	
Teacher					Atyaf Abed Al Qhar Youns	
Teacher					Mustafa Mahmood Yacoub	
assistant teacher					Aymen Majed Nassar	

assistant teacher					Amar Abed Al Tafeeq	
assistant teacher					Entesar Nadem Shlal	
assistant teacher					Amar Adnan Abed	
assistant teacher					Duread Rasme Mohmed	
assistant teacher					Ehab Latef Muklef	
assistant teacher					Methaq Abed Al Kareem	
assistant teacher					Ula Jameel Jabeer	

Professional Development
Mentoring new faculty members
The Department Presidency takes the Department Council meetings as a means to direct full-time professors and electronic gatherings to direct new, visiting, full-time and part-time faculty members at the institution and department levels.
Professional development of faculty members
A course plan is drawn up in the course description and updated periodically, with follow-up by the department and the scientific committee. The department supervises updating the course plan and its lectures.

12. Acceptance Criterion

The standard for admission to the department is according to what determines the minimum limits for admission to Iraqi universities and the committee for allocating students to departments for the college.

13. The most important sources of information about the program

The standard for admission to the department is according to what determines the minimum limits for admission to Iraqi universities and the committee for allocating students to departments for the college.

14. Program Development Plan

According to the university's strategy and what is agreed upon in the Curricula Modernization and Development Committee for the corresponding scientific departments.

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
				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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

Course Description

1. Course Name: Organic Chemistry
2. Course Code:
3. Semester / Year: Semester
4. Description Preparation Date:
5. Available Attendance Forms: My attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
90/3 Hour
7. Course administrator's name (mention all, if more than one name)
Name: rasim Frage Muslem Email: dr.rasim92hmts@uoanbar.edu.iq
8. Course Objectives

Course Objectives	**Helping the student know the structure of organic materials, including medicines, and how chemical reactions occur and the mechanics of the reaction.**
9. Teaching and Learning Strategies	
Strategy	**A- Knowledge and understanding** 1- That the student understands the basic concepts in qualitative analysis 2- Understand all the basic detection and separation methods for negative and positive ions. 3- Memorizing and understanding the equations for finding t concentration of a substance. **B- Subject-specific skills** 1- Classification of the chemical problem 2- Develop a plan to solve the problem Use separation rates and methods to address the problem

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
FIRST	5	Introduction and principles in organic techniques	organic chemistry	Giving lectures and discussion	Semester exam Daily exam Evaluating the performance of the student's activity in the lecture Solve class exercises
		Chemistry of carbon and hydrogen compounds			
		Energy concept			
		Organic formulations			
		Reaction relationship and physical properties of organic compounds Alkanes			
		Alcohols and phenols			
		Ethers			
		Carbonyl compounds			
		Amine derivatives			
		Basic principles in organic preparation techniques			
		Introduction and introduction to the spectrum of organic and life-giving compounds			
		Spectroscopy and its applications in organic diagnosis			

11.Course Evaluation	
Distributing the score out if 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 (curricu books, if any)	1- Organic Chemistry (Basic): Morson and Boyd 2- Taif membership: ((SPECTROMETRIC IDENTIFICATION OF ORGANIC COMPOUNDS)) ROBERT M. SILVERSTEIN FRANCIS X. WEBSTI DAVID J. KIEMLE
Main references (source)	
Recommended books and references (scientific journals, reports…)	
Electronic references, websites.	

Course Description

13. Course Name: General physics	
14. Course Code:	
15. Semester / Year: Semester	
16. Description Preparation Date:	
17.Available Attendance Forms: My attendance	
18.Number of Credit Hours (Total) / Number of Units (Total)	
90/3 Hour	
19. Course administrator's name (mention all, if more than one name)	
Name: Anmar Shaker Jasem Email: anmar90.a9@uoanbar.edu.iq	
20. Course Objectives	
Course Objectives	**Helping the student to know the structure of the basics of physics, including vectors, force analysis, and knowledge of the types of motion and their laws, in addition to classifying materials physically according to the basic elastic coefficients that serve their future academic directions.**
21. Teaching and Learning Strategies	
Strategy	**A- Knowledge and understanding** 1- That the student understands the basic concepts of physical quantities 2- Understanding all methods of vector analysis and knowing the angle and effectiveness of the vector 3- Understanding the equations of motion in one or two dimension (X & Y) **B- Subject-specific skills** 1- Classification of the physical problem 2- Develop a plan to solve the problem 4- Using rates and physical methods to address the problem **A- Teaching and learning methods** 1- Giving lectures. 2- Using the method of presentation, discussion, and solving

	questions. 3- Giving students assignments to strengthen them and prepare them for the monthly and final exams. **B- Evaluation methods** 1- Daily and monthly exams 2- Duties 3- In-class exercises

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
FIRST	5	Dimensions and measurement			Semester exam Daily exam Evaluating the performance of the student's activity in the lecture Solve class exercises
		Vectors			
		Linear motion			
		Force and Newton's laws of motion - equilibrium			
		Work, energy and capacity			
		Properties of matter - density - elasticity - Hooke's law			
		Monthly test			
		Fluid properties - pressure - viscosity - surface tension			
		Pressure change with height - pressure measuring devices - fluid dynamics			
		Heat - quantity of heat - specific heat Thermal expansion - heat transfer - ideal gases			
		Waves - sound - speed of sound - intensity of sound			
		Reflection and diffraction of sound - Doppler phenomenon -			
		uses and applications of sound			

		review			
		Monthly test			

23.Course Evaluation

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

24.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (source)	
Recommended books and references (scientific journals, reports…)	
Electronic references, websites.	

Course Description

1. Course Name: Inorganic chemistry – second stage
2. Course Code:
3. Semester / Year: Semester
4. Description Preparation Date:
5. Available Attendance Forms: My attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
90/3 Hour
7. Course administrator's name (mention all, if more than one name)
Name: Rasem Fraj Muslem Email: dr.rasim92hmts@uoanbar.edu.iq
8. Course Objectives

Course Objectives	**Knowledge of the atomic formula of elements, the molecular formula of compounds, the stereoscopic geometric structure of materials, its relationship to the effectiveness of the chemical substance, and the relationship of hybridization to the stability and effectiveness of the substance.**
9. Teaching and Learning Strategies	
Strategy	A- Knowledge and understanding 1- That the student understands the basic concepts in qualitative analysis 2- Understand all the basic detection and separation methods for negative and positive ions. 3- Memorizing and understanding the equations for finding the concentration of a substance. B- Subject-specific skills 5- Classification of the chemical problem 6- Develop a plan to solve the problem 4- Use separation rates and methods to address the problem

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
FIRST	5	Chemistry of elements			Semester exam Daily exam Evaluating the performance of the student's activity in the lecture Solve class exercises
		Periodic Table			
		Periodic properties The bonds Hybridization			
		The geometric shape of compounds and its relationship to hybridization			
		Acidic and basic			
		Quantum numbers Influential charge Blocking Cliques			
		Oxides and salts			
		Status symbol Coordination Chemistry			
		Pollution with inorganic elements			

11.Course Evaluation	
Distributing the score out if 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)	No rganic chemistry for the first stage Dr. Thanaa Al-Hassani Inorganic chemistry. Part One Noman Al Nuaimi Dr. Munther A Janabi
Main references (source)	
Recommended books and references (scientific journals, reports…)	
Electronic references, websites.	

Course Description

13. Course Name: Mathematics	
14. Course Code:	
15. Semester / Year: Semester	
16. Description Preparation Date:	
17.Available Attendance Forms: My attendance	
18.Number of Credit Hours (Total) / Number of Units (Total)	
90/3 Hour	
19. Course administrator's name (mention all, if more than one name)	
Name: Amar Adnan Abd Email: ammar.alhete22@uoanbar.edu.iq	
20. Course Objectives	
Course Objectives	**1. A student's acquisition of the concept of words and mathematical logic and ways of dealing with them algebraically.** **2. Clarify the concept of sets, relationships, functions and links between them and theories related to them.**
21. Teaching and Learning Strategies	
Strategy	**B- Course Learning Outcomes:** **Upon completing this course, students will:** **1. An ability to apply knowledge of mathematics, science and engineering.** **2. Evaluate the indefinite and improper integrals by using different integration techniques.** **3. Identify the definition and properties associated with definite integrals.** **4. Evaluate integrals using the method of substitution.** **5. Solve problems involving applications of integrals including finding volume of solids of revolution and area**

	between curves. **Discover determinants and matrices and their properties. Lea** **Crammer rule for solving a set of matrix system.**

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
FIRST	5	**Areas and Derivatives.**			
		The Definite Integral. The Fundamental Theorem of Calculus			
		The Indefinite Integral and Net Change Theorem.			
		Rules of Integrals			
		The Substitution Rule			
		Areas between Curves			
		First exam			
		Integration by Parts			
		Trigonometric Integrals.			
		Integrating Rational Functions by Partial Fractions			
		Integrals Involving Roots.			
		Second exam			
		Applications of Integrals			
		Applications of Integrals			
		Applications of Integrals			

23.Course Evaluation

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

24.Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Calculus, 8th edition (2007) by How Anton, (John Wiley & Sons, Inc, New Yo Chapters:7,8,10&11.**
Main references (source)	
Recommended books and references (scientific journals, reports…)	
Electronic references, websites.	

Course Description

25.	Course Name: Hydrology
26.	Course Code:
27.	Semester / Year: Semester
28.	Description Preparation Date:
29.	Available Attendance Forms: My attendance
30.	Number of Credit Hours (Total) / Number of Units (Total)
	90/3 Hour
31.	Course administrator's name (mention all, if more than one name)
	Name: Mustafa Mahmood Yacoub Email: mustafa.yacoub1980@uoanbar.edu.iq
32.	Course Objectives

Course Objectives	**One of the goals of teaching Water Science I is for the student to be familiar with the most important concepts related to water science and how to preserve it because it is the secret of life. Water is the cheapest available and the most expensive is lost, as they say. The student gets to know several concepts including the water budget, the hydrological cycle, and the precipitation and evaporation it includes. The student also learns about the importance of river water basins, how to calculate water discharge in rivers and streams, and the risks of floods. Finally, he learns about the most important water characteristics that must be preserved.**

33.	Teaching and Learning Strategies
Strategy	
34.	Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
FIRST	5	Introduction to hydrology and the hydrological cycle			Semester exam Daily

		Precipitation			exam Evaluating the performance of the student's activity in the lecture Solve class exercises
		Evaporation			
		River basins (watershed and drainage basin)			
		First month exam			
		runoff (runoff)			
		Discharge into rivers and streams (river course and drainage)			
		Sediment transport (river and stream sediments)			
		Floods			
		Second month exam			
		Ocean formation and climate			
		Beaches, coasts and estuaries			
		Ocean wave and currents			
		Ocean currents and waves Lakes			
		Glaciers			

35.Course Evaluation

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

36.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures by Professor Bayan Mohi Hassan (may God Almighty have mer on him) Engineering Hydrology, translated b Dr. Nizar Ali Sabti, 1983. Soil Physics, written by Hisham Hass 1991. Irrigation, its basics and applicatio written by Nabil Al-Tayef and Iss Khudair Al-Hadithi, 1988.
Main references (source)	
Recommended books and references (scientific journals, reports…)	
Electronic references, websites.	