COLLEGE OF ENVIRONMENTAL SCIENCES

GUIDE

DEPARTMENT OF ENVIRONMENTAL TECHNOLOGIES

2025

College of Environmental Sciences

Prof. Dr. Muthanna Jassim Mohammed Al-Taie

College Dean

Lect. Dr. Mohammed Waleed Saeed

Assistant Dean for Scientific Affairs

Assist. Prof. Dr. Shaymaa Khleel Abdullah

Assistant Dean for Administrative Affairs

Prof. Dr. Mohammed Ibrahim Khalil

Head of Department of Environmental Science

Assist. Prof. Dr. Ayad Fadheel Qasim

Head of Department of Environmental Technologies

Lect. Dr. Ali Z.A. AL-Ozeer

Head of Department of Climate Change

Assist. Prof. Dr. Rehab A. H. AL-Baker

Head of Department of Environmental Health

Introduction

The University of Mosul has been one of the most important educational and research institutions in Iraq since its founding in 1967. Its importance lies in its role as a distinctive pillar within the Ministry of Higher Education and Scientific Research's institutional structure, operating in accordance with its instructions, curricula, and laws. Today, it includes 24 colleges and eight research and educational centers, a newly established center for IELTS English language tests, and another for the national test. It also includes a research center for medical specialties, a specialized teaching hospital, and mobile clinics. In the field of scientific publishing, its peer-reviewed scientific journals occupy an active and advanced position in the global Scopus database. The university has also entered the most important international scientific rankings and has achieved a distinguished presence. It has museums, theaters, and a central library. The University of Mosul has raised the slogan of serving society, embracing the approach of sustainable development to preserve the environment.

The College of Environmental Sciences was established at the heart of the University of Mosul in 2006, carrying with it a noble mission: protecting the environment and conserving its resources is not merely a moral responsibility. Rather, it is a science, a thought, and a constantly evolving practical practice based on accurate knowledge, conscious planning, and effective partnerships with various sectors of society. This is aimed at serving the environment and the labor market, enhancing partnerships and integration with governmental and private institutions in light of the global shift toward a green economy and sustainable development. This is achieved through implementing applied research projects that contribute to achieving sustainable development, raising environmental awareness in society, making a real difference, and building a sustainable and prosperous environmental future.

Among the departments of the College of Environmental Sciences, the Department of Environmental Technologies emerged at the beginning of the 2009-2010 academic year, having been part of the college's founding branches in 2006. The Department of Environmental Technologies is one of the most important departments at the University of Mosul within the College of Environmental Sciences, having been established in 2009. The total number of students enrolled over the past five years has reached (1,569). The department council consists of eight members: the department head, the department coordinator, and six faculty members. The department's graduates contribute to understanding and describing environmental problems and finding appropriate solutions that serve the community and the labor market.

Department Management

Assist Prof. Dr. Ayad Fadheel Qasim

- Head of the Department of Environmental Technologies
- Specialty: Environmental Engineering

Assist. Lect. Abdulah Abdulsttar Thanoon

- Coordinator
- Specialty: Environmental Science

Department Laboratories

Soil and water lab

- **Miss. Raghad Nadeer Ahmed**

Microbiology Lab

- **Mrs. Hiba Younis Qasim**

Physics Lab

- **Mrs. Ma'wa Abdulaghani Younis**

Computer Lab

- **Mr. Ammar Fawaz Ahmed**

Chemistry Lab

- **M.ss. Fatima Sameer Mohammed**

To introduce the department's practical and scientific qualifications and skills by clarifying its vision, mission and objectives.

Department Vision:

Preparing specialized competencies capable of effectively contributing to environmental protection, achieving sustainable development, and enabling graduates to compete in the labor market.

Department Mission:

Preparing specialized and qualified academic cadres in the field of environmental protection technologies and resource management by providing high-quality education based on technical analysis of environmental problems.

Department Objectives:

1) Providing graduates with cognitive skills in the fields of environmental technologies, their suitability for the labor market, and enabling them to apply these skills.

2) Developing students' technical skills in the fields of scientific research and postgraduate studies, enabling them to describe environmental problems and develop appropriate solutions.

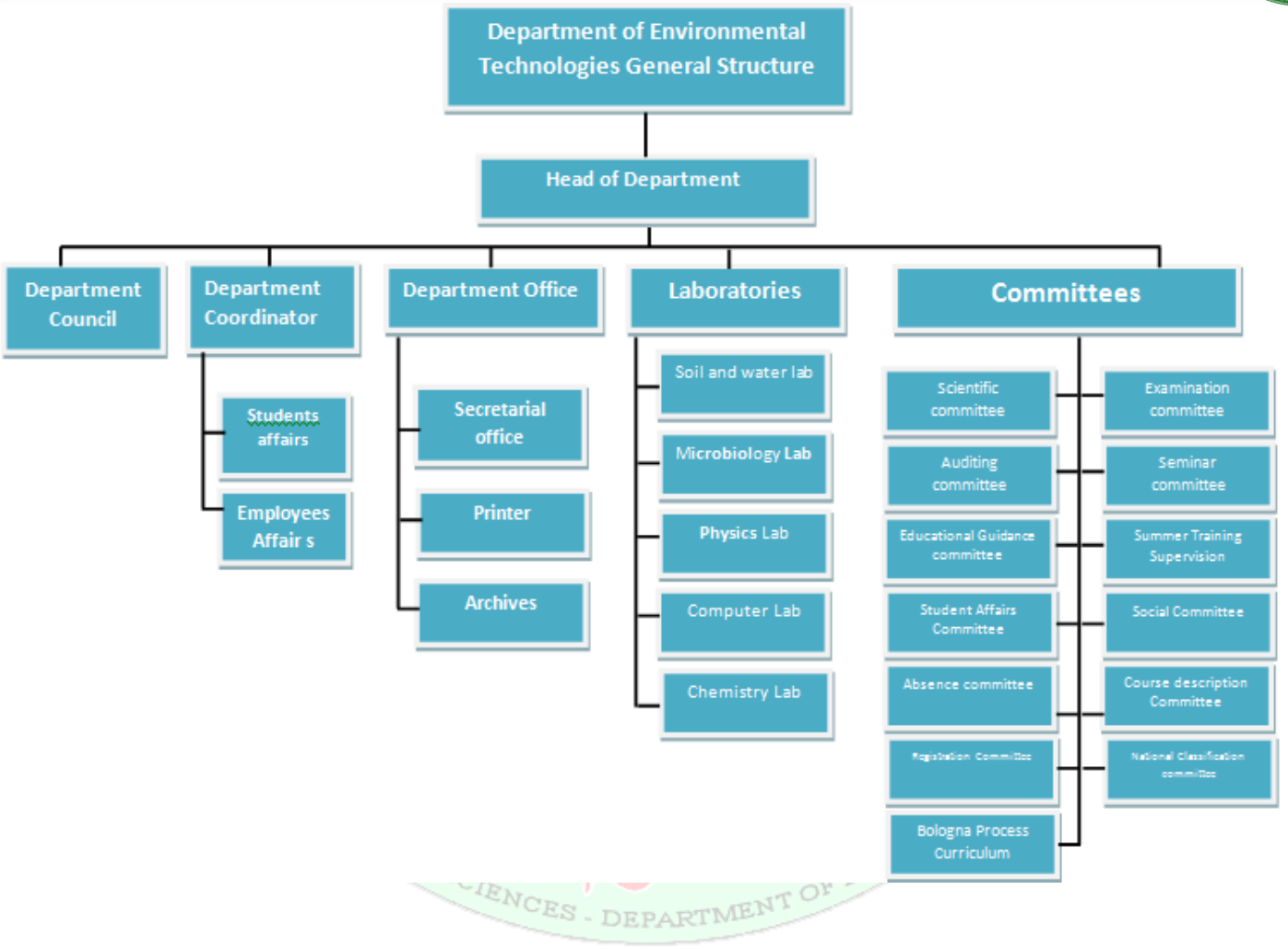
3) Developing academic environmental capabilities and awareness-raising teamwork.

4) Instilling environmental values and education that contribute to serving the community.

5) Employing practical skills in the fields of environmental technologies to meet labor market needs.

6) Providing graduates with knowledge of sustainability technologies and methods for their practical application.

7) Providing graduates with skills in environmental management and cost accounting.


Department of Environmental Technologies General Structure
Head of Department
Department Council
Department Coordinator
Department Office
Laboratories
Committees
Students affairs
Employees Affair s
Secretarial office
Printer
Archives
Soil and water lab
Microbiology Lab
Physics Lab
Computer Lab
Chemistry Lab
Scientific committee
Auditing committee
Educational Guidance committee
Student Affairs Committee
Absence committee
Bologna Process Curriculum
Examination committee
Seminar committee
Summer Training Supervision
Social Committee
Course description Committee

Responsibilities

The duties of the Department Head: include managing the department's academic, administrative, educational, cultural, financial, technical, and student affairs aspects; supervising teaching and teaching methods; preparing quarterly and annual academic reports on the department's activities and submitting them to the Dean; forming department committees; distributing duties to department members according to the department's interests; and issuing administrative orders to that effect.

Department Rapporteur: distributing lessons to faculty members; monitoring student absences; managing daily student absences; and monitoring department seminars.

Department Council: The council assists the department head in overseeing the educational process and workflow in the department, monitoring the implementation of the academic plan and the plan to develop teaching and administrative staff.

Scientific Committee: The committee participates with the department head in all academic decisions related to curricula and their development, reviewing academic promotions for faculty members, and issuing research and assignments. It also handles all matters related to registering academic research, verifying its titles and abstracts, and the completion rates for each academic research.

Bologna Process Curriculum Guide Committee: Fulfilling Bologna Process requirements by applying quality standards across all aspects of the process to improve the outcomes of the teaching and learning process. They also oversee the completion of the academic program description, course descriptions, and curriculum, and follow up on the preparation of course specifications.

Examination Committee: **Oversees student semester, midterm, and final exams, organizes proctoring schedules, and assigns proctors to exam halls. Receives exam questions and results from faculty, organizes them, and maintains their confidentiality. Conducts statistics on final results, determines pass and fail rates for students taking exams, and monitors the organization of exams for students taking a make-up exam.**

Auditing Committee: **Its work coincides with the work of the department's examination committee during exams and the announcement of results. Its members audit the grades received from faculty (studies) and the grades recorded on scorecards. They also audit exam results before announcing them to students.**

Seminar Committee: Monitors continuing education courses conducted by department faculty for technical staff in various governorate departments, as well as seminars and conferences held by the department in the field of environmental technologies.

Educational Guidance Committee: Meets with students to identify academic problems and obstacles they encounter and prepares a report on them.

Summer Training Supervision Committee for Third-Year Students: Prepares official documents for third-year students' training in government departments, monitors students, and receives reports on students who have completed the training.

Student Affairs Committee: **Members of this committee prepare lecture schedules for undergraduate students, welcome and register new students at the beginning of each academic year, and record student enrollment for all academic levels. They also monitor student status throughout the academic year, including transfers, hosting, deferrals, and other student enrollment requirements. They also prepare student lists for all levels and classrooms.**

Social Committee: **Follows up on the social cases of department students and affiliates who have economic or social circumstances that require assistance.**

Department Administration Office: **Records incoming official letters, then distributes outgoing mail from the department head into a liability register, exports official letters, follows up on unanswered official letters, and organizes incoming and outgoing mail into searchable files.**

Printing: **Prints official letters, records daily absences, and issues a monthly schedule of student absence rates. Receives emails and forwards them to the department administration office.**

Archiving: **Electronically archives fourth-year students' graduation projects completed within the department's research tracks.**

Teaching Staff

No.	Name	Title	Minor specialization	Major specialization
1	Dr. Ayad Fadeel Qasim	Assist. Prof.	Environmental Engineering	Civil Engineering
2	Abdulah Abdulsttar Thanoon	Assist. Lect.	Environmental Science	Biological Science
3	Dr. Eman AbdMonem Al Jawadi	Assist. Prof.	Physical Chemistry	Chemistry
4	Dr. Rasha Khalid Sabry	Assist. Prof.	Environmental Engineering	Civil Engineering
5	Mohamed FakhirAldeen Ahmed	Assist. Prof.	Environmental Engineering	Civil Engineering
6	Raid Mahmood Faisal	Assist. Prof.	Physical geography	Physical geography
7	Dr. Abdul SattarJubairZaben	Lect.	Soil Chemistry and Minerals	Soil and water resources
8	Dr. Tahseen Ali Hassan	Lect.	Hydraulic	Dam and Water Resources Engineering
9	Dr. Hassan Hassn Jasim	Lect.	Accounting	Management and Economics
10	Muthaina Abdulla Mustafa	Lect.	Applied Statistics	Statistics and Informatics
11	Ruaa Muthfer Yonis	Lect.	Environmental Engineering	Civil Engineering
12	Diana Nooraldin Mustafa	Lect.	Biology techniques	Biology
13	Wissam Saeed Abed	Lect.	Linguistics	English Language
14	Hamsa Burhan Mohammed	Assist. Lect.	Materials Science	Physics
15	Hana Adalt Hassan	Assist. Lect.	Economy	Management and Economics
16	Omar KhairAldin Mohealdin	Assist. Lect.	Geocentric	Civil Engineering
17	Ahmed AbdRazaq Khather	Assist. Lect.	Irrigation	Dam and Water Resources Engineering

Teaching Staff

No.	Name	Title	Minor specialization	Major specialization
18	Mustafa Amer Thanoon	Assist. Lect.	Environmental Science	Environmental Science
19	Hanan Reyed Jarallah	Assist. Lect.	Geotechnics	Civil Engineering
20	Muhand Qasim Ali	Assist. Lect.	Soil	Agriculture
21	Mohamed Sad Alla Younis	Assist. Lect.	Analytical Chemistry	Chemistry
22	Asma Muayad Sad Allah	Assist. Lect.	Hydrology	Dam and Water Resources Engineering
23	Abir Saleh Ateya	Assist. Lect.	Physical Chemistry	Chemistry
24	Yasir Hazim Younis	Assist. Lect.	Geotechnics	Civil Engineering
25	Amina Ibrahim Ahmed	Assist. Lect.	Environmental Science	Environmental Science
26	Arwa Abdulrazaq Jamal	Assist. Lect.	Irrigation	Hydrologic
27	Raghad Hazim Saeed	Assist. Lect.	Computer	Computer Engineering
28	Maan Hashim Mohmood	Assist. Lect.	Plants	Biological Science
29	Burkan Moatasim Motashir	Assist. Lect.	Structures	Civil Engineering
30	Alaa Jasim Mohammed	Assist. Lect.	Chemistry	Inorganic Chemistry
31	Mohammed Abdularazaq	Assist. Lect.	Environmental Science	Environmental Science
32	Aus Nawfal	Assist. Lect.	Environmental Sciences	Environmental Science
33	Omar Abdul jabar Abdullah	Assist. Lect.	Environmental Science	Environmental Science

Department Building

The Department of Environmental Technology was established at the beginning of the academic year 2009-2010. It is one of the founding departments of the College of Environmental Sciences and is one of the most important departments at the University of Mosul. The total number of students enrolled in the last five years is (1569). The department's graduates contribute to understanding and describing environmental problems and finding appropriate solutions to them, which contribute to serving the community and the labor market. The Department of Environmental Technology at the University of Mosul is located within the first complex next to the College of Petroleum and Mining Engineering. The department enjoys a convenient location that is easily accessible from the university's various gates. This provides students and faculty members with easy access to other university facilities such as the university presidency, the central library, the student center, and the university theater. The department's distinguished location provides a suitable educational and academic environment.

Department of Environmental Technologies

Geographic location of the department

Apparatuses Description of Chemistry Laboratory

No.	Device Name	Device Description	Device Picture
1	COD	It works with photoelectric heating technology and checks the chemical oxygen requirement in water.	 COD
2	Muffle furnace	A thermal furnace operating at high temperatures up to 1800°C to burn samples, analyze their components, and measure total solids.	
3	Water bath	Sample incubator, operates at water temperature and is used to heat samples that need to be heated.	 حمام مائيWater bath

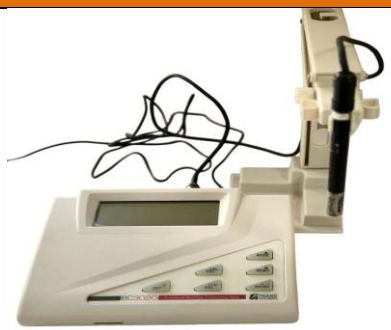
Apparatuses Description of Chemistry Laboratory

No.	Device Name	Device Description	Device Picture
4	Dissolved Oxygen	A device that measures the concentration of dissolved oxygen in water using an electrochemical or optical sensor to determine the amount of dissolved oxygen in liquids.	 جهاز قياسDissolved Oxygen
5	BOD	A device for measuring the amount of oxygen consumed by living organisms and examining the biological oxygen requirement in fine water for the analysis of organic matter.	 BOD
6	Sensitive Scale	A very precise balance for measuring masses in fractions of a gram, with an accuracy of up to 0.0001 grams.	 Sensitive Scale

Apparatuses Description of Chemistry Laboratory

No.	Device Name	Device Description	Device Picture
7	Turbidity	A device that measures water turbidity in NTU units using optical scattering technology and turbidity testing in water.	 Turbidity
8	Spectrophotometer	A device that measures the optical absorbance of samples at specific wavelengths and measures some elements by spectroscopic methods.	 Spectrophotometer
9	PH meter	Measures the pH or alkalinity of liquids using a glass sensor and checks the acidity of water and soil extracts.	 pH meter

Apparatuses Description of Chemistry Laboratory

No.	Device Name	Device Description	Device Picture
10	EC meter	Measures the ability of water to conduct electricity, expresses the concentration of dissolved ions and tests the salinity in water samples and soil extracts	 EC meter
11	Water Distiller	It is used to produce pure distilled water through evaporation and condensation to obtain distilled water.	 Water Distiller
12	Stirrer hotplate	Heats and magnetically moves liquids at the same time.	 Stirrer hotplate
13	Centrifuge	Separates components of samples based on their density using centrifugal force.	 Centrifuge

Apparatuses Description of Soil and Water Laboratory

No.	Device Name	Device Description	Device Picture
1	Ion Selective Electrode	Measures the concentration of a specific ion in a solution using a sensitive electrode, checking chloride, fluoride, nitrate, electrical conductivity, and pH.	 Ion Selective Electrode
2	Sensitive ScaleSF-400C	A very precise balance for measuring masses in fractions of a gram, with an accuracy of up to 0.01 grams.	 Sensitive Scale
3	Flame photometer	Measures the concentration of mineral elements such as sodium, potassium, calcium, and barium using a flame.	 Flame photometer
4	Spectrophotometer	A device that measures the optical absorbance of samples at specific wavelengths and measures some elements by spectroscopic methods.	 Spectrophotometer

Apparatuses Description of Microbiology Laboratory

No.	Device Name	Device Description	Device Picture
1	Incubator	Provides a suitable environment for the growth of microorganisms at controlled temperatures and for the incubation of samples.	
2	Microscope	Magnifies samples to observe fine details such as cells and bacteria.	 Microscope
3	Auto clave ZY-280	Sterilizes laboratory instruments using pressurized steam.	 Auto clave

Apparatuses Description of Physics Laboratory

No.	Device Name	Device Description	Device Picture
1	Sensitive Scale SF-400C	Precision balance for measuring mass in grams	 Sensitive Scale
2	Digital Geiger Counter GCA 07W	Measures levels of ionizing radiation such as alpha, beta, and gamma.	 جهاز قياس الاشعاع

Apparatuses Description of Computer Science Laboratory

No.	Device Name	Device Description	Device Picture
1	laptop	A number of computers are used in the practical aspect of Computer 1 and Computer 2 subjects and for data analysis.	

University of Mosul / College of Environmental Sciences / Department of Environmental Technologies
Program Curriculum
Bologna Process

Republic of Iraq - Ministry of Higher Education and Scientific Research	جمهورية العراق – وزارة التعليم العالي والبحث العلمي
University of Mosul	جامعة الموصل
Bachelor's degree in Science\ Environmental Technology (first cycle)	بكالوريوس علوم/تقانة بيئية(الدورة الاولى)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr	اربع سنوات (ثمان فصول دراسية) -240 وحدة اوربية- كل وحدة اوربية= 25 ساعة
Program Curriculum (2023 - 2024)	المنهاج الدراسي للعام الدراسي2023-2024

level	Semester	No.	Module Code	Module name in English	اسم المادة الدراسية	Language	SSWL (hr/w)					Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)								
UG1	One	1	ENVT101	General Physics	فيزياء عامة	Arabic	3	1	2		1		3	104	71	175	7.00	C	
		2	ENVT102	General Chemistry	كيمياء عامة	Arabic	3	1	2			3	3	102	98	200	8.00	C	
		3	ENVT103	General Biology	علم الاحياء عام	Arabic	3	1	2			2	3	95	80	175	7.00	C	
		4	ENVT104	Mathematics	رياضيات	English	4	1			1	1	3	106	44	150	6.00	S	
		5	UOM102	English language	لغة انكليزية	English	2	1			1		3	37	13	50	2.00	B	
						Total	15	5	6	0	3	6	15	444	306	750	30		
	Semester	No.	Module Code	Module name in English	اسم المادة الدراسية	Language	SSWL (hr/w)					Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)								
	Two	1	ENVT105	Geology	علم الارض	Arabic	2	1	2		2		3	78	72	150	6.00	C	
		2	ENVT106	Analytical Chemistry	كيمياء تحليلية	Arabic	3	1	2				3	93	82	175	7.00	C	
		3	ENVT107	Environmental Science	علم البيئة	Arabic	3	1					3	63	37	100	4.00	C	
		4	ENVT108	Mathematics II	رياضيات 2	English	4	1			1			93	57	150	6.00	S	
		5	UOM103	Computer Science	الحاسوب	Arabic	2	1	1				3	63	12	75	3.00	B	
		6	UOM101	Arabic Language	اللغة العربية	Arabic	1	1					3	33	17	50	2.00	B	
		7	UOM104	Democracy and Human Rights	الديمقراطية وحقوق الانسان	Arabic	1	1					3	33	17	50	2.00	B	
						Total	16	7	5	0	3	0	14	456	294	750	30		

University of Mosul / College of Environmental Sciences / Department of Environmental Technologies
Program Curriculum
Bologna Process

level	Semester	No.	Module Code	Module name in English	اسم المادة الدراسية	Language	SSWL (hr/w)					Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)								
UG2	Three	1	ENVT212	Hydrology 1	علم المياه1	Arabic	2	1	2			1	3	90	35	125	5	C	
		2	ENVT209	Fluids Mechanic 1	ميكانيك موائع 1	Arabic	2	1	2				3	78	72	150	6	C	
		3	ENVT211	Environmental Statistics	احصاء بيئي	Arabic	2				2		3	63	37	100	4	C	
		4	ENVT213	Soil Physics	فيزياء تربة	Arabic	2	1	2				3	90	35	125	5	C	
		5	UOM210	Environmental Chemistry 1	كيمياء بيئية1	Arabic	2		2				3	78	72	150	6	C	
		6	UOM2012	Arabic Language 2	اللغة العربية 2	Arabic	2						3	33	17	50	2	B	
		7	UOM2050	The Crimes of the Baath Regime in Iraq	جرائم نظام البعث في العراق	Arabic	2						3	33	17	50	2	B	
						Total	14	3	8		2	1	21	465	285	750	30		
	Semester	No.	Module Code	Module name in English	اسم المادة الدراسية	Language	SSWL (hr/w)					Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)								
	Four	1	ENVT214	Fluids Mechanic 2	ميكانيك موائع 2	Arabic	2	1	2			1	3	90	35	125	5	C	
		2	ENVT215	Hydrology 2	علم المياه 2	Arabic	2	1	2			1	3	90	35	125	5	C	
		3	UOM2032	Computer science 2	حاسوب 2	Arabic	2	1	1				3	63	12	75	3	B	
		4	ENVT218	Engineering Analysis	تحليلات هندسية	Arabic	2				2		3	90	35	125	5	C	
		5	ENVT216	Environmental Chemistry 2	كيمياء بيئية 2	Arabic	2	1	2			1	3	90	35	125	5	C	
		6	ENVT217	Environmental Geology	جيولوجيا بيئية	Arabic	2	1	2				3	78	47	125	5	C	
		7	UOM2022	English language 2	اللغة الانكليزية 2	English	2						3	33	17	50	2	B	
						Total	14	5	9		2	3		534	216	750	30		

University of Mosul / College of Environmental Sciences / Department of Environmental Technologies

Module Guide 2024-2025

First Level

Module Code	Module Title	Level
ENVT102	General Chemistry	First Semester
ENVT101	General Physics	
ENVT103	General Biology	
ENVT104	Mathematics1	
UOM102	English language 1	
ENVT105	Geology	Second Semester
ENVT108	Mathematics2	
ENVT107	Environmental Science	
UOM101	Arabic Language 1	
UOM104	Human rights and democracy	
ENVT106	Analytical Chemistry	
UOM103	Computer science 1	

Second Level

Module Code	Module Title	Level
ENVT212	Hydrology 1	Third Semester
ENVT209	Fluids Mechanic 1	
ENVT211	Environmental Statistics	
ENVT213	Soil Physics	
ENVT210	Environmental Chemistry 1	
UOM2012	Arabic Language 2	
UOM2050	The Crimes of the Baath Regime in Iraq	
ENVT214	Fluids Mechanic 2	Fourth Semester
ENVT215	Hydrology 2	
UOM2032	Computer science 2	
ENVT218	Engineering Analysis	
ENVT216	Environmental Chemistry 2	
ENVT217	Environmental Geology	
UOM2022	English language 2	

Third Year

Module Code	المادة	
EnvTch31	Water treatment	Annual
EnvTch32	Measurement technologies	
EnvTch33	GIS	
EnvTch34	Engineering analysis	
EnvTch35	Solid Wastes	
EnvTch36	Soil pollution	
EnvTch37	Biochemistry	
EnvTch38	Industrial waste management	
EnvTch39	Thermodynamics	
EnvTch310	Democracy	

Fourth Year

Module Code	المادة	
EnvTch41	Wastewater treatment	Annual
EnvTch42	Environmental regulations	
EnvTch43	Irrigation	
EnvTch44	Air Pollution	
EnvTch45	Urban planning	
EnvTch46	Remote sensing	
EnvTch47	Water reuse	
EnvTch48	Environmental cost and management	
EnvTch49	Renewable energy	
EnvTch410	Graduation Project	

Research Directions for the Department of Environmental Technologies/ College of Science/ University of Mosul

Research Areas of the Environmental Technology Department:

The Environmental Technology Department is concerned with studying environmental problems and attempting to provide appropriate technical solutions to preserve the environment and human health. Its research areas include several axes distributed across environmental elements, such as water, air, and soil, in addition to addressing sources of pollution in all its chemical, physical, biological, radioactive, and noise forms, with a focus on sustainable environmental treatment and control techniques.

The department's research path can be summarized in the following axes:

First: Management and Treatment of Drinking Water and Wastewater

•Improving physical, chemical, and biological wastewater treatment techniques.

•Reusing treated water in agriculture and industry.

•Monitoring the quality of surface and groundwater and assessing pollutant levels.

•Applying membrane technologies (such as reverse osmosis and ultrafiltration) in advanced water treatment.

•Designing and implementing aerobic and anaerobic bioreactors and oxidation ponds in wastewater treatment.

•Using microorganisms in the bioremediation of contaminated water.

Second: Air Pollution and Control

•Monitoring air pollutants such as particulate matter, sulfur and nitrogen oxides, and volatile organic compounds.

•Designing industrial emission control systems (such as filters and wet towers).

•Assessing indoor air quality in buildings and public facilities.

Third: Soil Pollution and Remediation

•Analyzing chemical soil contamination such as heavy metals, pesticides, and oil.

•Biotechnologies for soil remediation such as absorbing plants and microbiological remediation.

•The impact of agricultural and industrial practices on soil fertility and quality.

•Rehabilitation of lands degraded by human activities.

Fourth: Solid Waste Management and Treatment

•Classifying and collecting domestic, industrial, and agricultural waste according to its physical and chemical properties.

•Designing effective waste sorting and recycling systems to reduce the final waste volume.

•Treating organic waste through anaerobic fermentation or biodegradation to produce compost or biogas.

•Sanitary landfill techniques and reducing the environmental impacts of landfill sites, such as land and water pollution.

•Assessing the environmental impact of waste facilities, improving their sustainability, and reducing emissions.

Fifth: Radioactive and Noise Pollution

•Monitoring radioactivity in the environment (water, soil, air).

•Assessing radiation risks to workers and residents surrounding industrial or medical facilities.

•Using radiation detection devices and spectral analysis.

•Measuring noise intensity in urban and industrial areas.

•Attempting to develop noise maps to identify the most extreme hotspots in cities.

Sixth: Energy and Environment

•Analyzing the environmental impact of traditional and renewable energy sources.

•Developing clean energy technologies such as solar energy and biomass.

•Studying the relationship between climate change and greenhouse gas emissions.

Seventh: Modern and Smart Technologies in Environmental Protection

•Using remote sensing and geographic information systems (GIS) technologies in environmental monitoring.

•Smart control of some air pollutants using the Internet of Things (IoT).

Abstract:

The Environmental Technology Department focuses on combining scientific knowledge with modern technologies to diagnose environmental problems and provide sustainable and comprehensive solutions. This specialization serves the industrial, health, agricultural, and municipal sectors, making it an important pillar for sustainable environmental development..

Department of Environmental Technologies

University of Mosul - College of Environmental Sciences

Department of Environmental Technologies

This guide has been prepared under the guidance

of the Dean of the College of Environmental Sciences,

Professor Dr. Muthanna Jassim Mohammed Al-Taie,

and under the supervision of the Head of the Environmental Technologies Department,

Assistant Professor Dr. Ayad Fadheel Qasim,

To serve as a reference for introducing the Department of Environmental Technologies, its members, and the study undergraduate studies programs

2025 Edition