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

2024

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 staff 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, quarterly), 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: Mosul University

Faculty/Institute: College of Engineering

Scientific Department: Environmental. Engineering

Academic or Professional Program Name: Environmental Engineering

Final Certificate Name: BSc. of science in Environmental Engineering

Academic System: Course System + Bologna Process

Description Preparation Date: March, 2024

File Completion Date: March, 2024

Signature:

Head of Department Name:
Dr. Abdullah Ismael Ibrahim

Date: 8-4-2024

Signature:

Scientific Associate Name:
Dr. Ayman Talib Hameed

Date:

The file is checked by: Dr. Abdulrahman Hani Taha

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

1. Program Vision

Leadership and excellence in environmental engineering in education, research, and application

2. Program Mission

Consolidating the role of environmental engineering in community, raising the level of the graduate and developing his ability to compete in the labor market with high professionalism and employing it in achieving comprehensive and sustainable development

3. Program Objectives

1-Our graduates will perceive engineering knowledge and skills that help them to advance their career in the field of environmental engineering
2-Our graduates will establish themselves as practicing engineers in the field of environmental engineering, civil engineering and other related domains
3-Our graduate will be provided by creative knowledge to fulfill the need of society

4. Program Accreditation

The Program is under review by the National Council for Accreditation of Engineering Education (ICAEE)

5. Other external influences

Deanship of Engineering College

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	12	23	13.7	
College Requirements	12	25	14.9	
Department Requirements	43	120	71.4	
Summer Training	1	….		
Other				

7. Program Description

Year/ Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
1	ENV111	Mathematics	3	
	ENV112	Statics	3	
	ENV113	Engineering Drawing	3	3
	ENV114	Environmental Thermodynamics	3	
	ENV115	Statistics	2	
	UOM101	Arabic	2	
	UOM104	Democracy and Human Rights	2	
	ENV121	Calculus	3	
	ENV122	Dynamics	2	
	ENV123	Principles of Environmental Engineering	2	
	ENV124	Environmental Geology	2	
	ENV125	Drawing by Computer	1	3
	UOM103	Computer	1	2
	UOM102	English 1	2	
2	UOMC	English language pre-intermediate	2	
	ENGC227	Statistics	2	
	ENV240	Engineering mathematics	4	
	ENV241	Engineering surveying	4	3
	ENV242	Principles of environmental engineering	2	
	ENV243	Strength of materials	3	
	ENV244	Construction materials	1	2
	ENV245	Remote sensing	2	
	UOMC	Electrical installation	2	
	ENV246	Engineering analysis	2	
	ENV247	Fluid Mechanics	3	2
	ENV248	Water quality engineering	2	2
	ENV249	GIS applications	1	2
	ENV250	Building construction	2	
	ENV251	Hydrology	3	
	ENV252	Microbiology	2	2
3	ENG329	Public safety	2	
	ENG320	Numerical analysis	2	
	ENV340	Water supply networks	3	
	ENV341	Hydraulic applications	3	
	ENV342	Soil mechanics	3	2
	ENV343	Air pollution	3	
	ENV344	Wastewater engineering	2	
	ENV345	Engineering research	2	
	UOMC	English language - intermediate	2	
	ENV346	Sanitary Sewer networks	3	
	ENV347	Foundation engineering	3	
	ENV348	Water chemistry	3	
	ENV349	Reinforcement concrete	3	
	ENV350	Solid waste	4	
	ENV390	Noise pollution	2	
4	ENG425	Engineering management	2	
	ENG436	Sustainable environmental engineering	2	
	ENV440	Drinking water treatment	4	
	ENV441	Wastewater treatment design	4	

	ENV442	Environmental construction design	3	
	ENV443	Air pollution control	3	
	ENV444	Engineering project 1	2	
	UOM	English language -advanced	2	
	ENG426	Engineering economic	2	
	ENV445	Industrial and petroleum wastewater	4	
	ENV446	Soil and ground water pollution	3	
	ENV447	Construction drawing	2	
	ENV448	Estimation	2	
	ENV449	Engineering project 2	2	
	ENV490	Advanced water supply	2	

8. Expected learning outcomes of the program

Knowledge	
Learning Outcomes (**A**)	**A1**-An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics. **A2**-An ability to apply the engineering design process to produce solutions that meet specified needs with consideration for public health and safety, and global, cultural, social, environmental, economic, and other factors as appropriate to the discipline **A3**-An Ability to applying both analysis and synthesis in the design process. **A4**-An ability to function effectively as a member or leader of a team that establishes goals, plans task, meets deadlines, and creates a collaborative and inclusive environment
Skills	
Learning Outcomes (**B**)	**B1**-An ability to develop and conduct appropriate experimentation, analyze and interpret data **B2**-An ability to using engineering judgment to draw conclusions **B3**-An ability to skillfully communicate orally with a gathering of people and in writing with various managerial levels. **B4**-An ability to perceive the continual necessity for professional knowledge growth and how to find, assess, assemble and apply it properly.
Ethics	
Learning Outcomes (**C**)	**C1**-An ability to recognize ethical and professional responsibilities in engineering situations **C2**-An ability to make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts **C3**-An ability to set up objectives, plan activities, meet due dates, and manage risk and uncertainty **C4**-The ability to ensure the quality of environmental engineering works by adhering to engineering specifications.

9. Teaching and Learning Strategies

- Power point lectures
- Tutorial
- Laboratory experiments
- Computer laboratories
- Video lectures
- Team works
- Case Studies
- On-line lectures

10. Evaluation methods

- Mid-Term and final exams
- Quizzes
- Reports
- Laboratory exams
- Projects and technical reports

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Civil Engineering	Environmental Engineering			1	
Assist. Professor	Civil Engineering	Environmental Engineering			2	
Assist. Professor	Civil Engineering	Geotechnique			1	

Lecturer	Civil Engineering	Environmental Engineering			9	
Lecturer	Civil Engineering	Structural Engineering			5	
Lecturer	Civil Engineering	Geotechnique			1	
Assist. Lecturer	Civil Engineering	Environmental Engineering			5	
Assist. Lecturer	Civil Engineering	Structural Engineering			1	
Assist. Lecturer	Computer Engineering	Computer Engineering			1	

Professional Development

Mentoring new faculty members

The academic program aims to strengthen the knowledge of new faculty members in various educational fields, starting with the ability to manage the course and ending with the processes and procedures that ensure the achievement of the targeted learning outcomes in the various programs. This can be achieved through:

• Holding educational courses for new faculty members to improve the quality of the educational learning process, which are: training on teaching methods, designing courses outlines, modern trends in university teaching, evaluating student learning, and preparing tests, in addition to the university's laws, regulations, instructions, and e-learning.

• Continuous evaluation of teaching staff members, full and partial-time faculty, to direct them to the areas they need to develop during their educational career

• Urging full and partial-time faculty to participate in teaching staff development courses held by the department or the continuing education unit at the university.

Professional development of faculty members

Continuous Learning Committee of Environmental Engineering Department organizes lectures and workshops for faculty members in various fields. The professional development activities held in the past five academic years are listed as follows:

- ✓ Development of education methods and E-learning/ 9
- ✓ Scientific publications/44
- ✓ Academic accreditation/2
- ✓ Miscellaneous seminars in the environmental engineering field/47
- ✓ Participation in conferences, seminars, workshops, and training courses outside Iraq/2
- ✓ Participation in conferences, seminars, workshops, and training courses inside Iraq/26

The faculty members actively participate in various workshops and training courses that fit their teaching, quality, and research skills. Last five academic years, eighteen faculty members presented a total skills development (10 workshops/13 continuous education courses). The department encourages faculty members to attend conferences, seminars, workshops, and training courses for professional development. Within the past five academic years, nine of faculties participated (as a Lecturer) in a total of 3 conferences and 3 symposiums. Regarding postgraduate studies, we would like to note that there are no postgraduate studies in the department yet.

12. Acceptance Criterion

The announced central admission results are based on the official website of the Ministry, and the announcement is a formal notice to the department to begin registering students on the day following the announcement of the results, and the registration period continues within a period of 15 (working days) starting from the date of register.

The students' files were received by the registration unit in the department and contain the documents required above, and they were checked by the registration unit.

The capacity of the Environmental Engineering Department is determined within the admission plan, where the committee determines the flag that indicates the number of new students required to be accommodated, then it is sent to the deanship, then the university, and then the ministry to obtain approval.

13. The most important sources of information about the program

- Guidebook for Mosul University

  The departmental website:

http://uomosul.edu.iq/pages/en/engineering/46848

14. Program Development Plan

To improve the quality of education, promote the graduates' outcomes, and to meet the competencies requirements of increasingly complex societies, the department council decided to follow “Bologna process system of Education” which appropriate the European Credit Transfer and Accumulation System (ECTS) of study instead of courses system as a result of the policy of continuous improvement adopted by the department. Indeed, the new system of study will be launched since 2023-2024

The Bologna has been introduced with the expectation of maintaining the flowing advantages:

- It improves the education system by putting the student in the center of the learning process (Student- Centered Learning)
- More emphasis is laid on class interaction because of constant engagement between teachers and students
- There is an emphasis on gaining professional and practical skills during the study
- It will provide an opportunity to the students for continuous learning, assessment and feedback.
- It facilitates in evaluating the performance of students twice a year.
- It facilitates a better understanding of the subjects.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
1	ENV111	Mathematics	Basic	*		*								*	
	ENV112	Statics	Basic	*		*								*	
	ENV113	Engineering Drawing	Basic	*		*		*			*			*	
	ENV114	Environmental Thermodynamics	Basic	*		*								*	
	ENV115	Statistics	Basic	*		*								*	
	UOM101	Arabic	Basic	*		*				*				*	
	UOM104	Democracy and Human Rights	Basic									*			
	ENV121	Calculus	Basic	*		*								*	
	ENV122	Dynamics	Basic	*		*								*	
	ENV123	Principles of Environmental Engineering	Basic	*	*	*								*	*
	ENV124	Environmental Geology	Basic	*		*								*	

	ENV125	Drawing by Computer	Basic	*		*					*			*	
	UOM103	Computer	Basic							*	*				
	UOM102	English 1	Basic							*	*				
2	UOMC	English language pre-intermediate	Basic							*	*				
	ENGC227	Statistics	Basic	*		*									
	ENV240	Engineering mathematics	Basic	*		*									
	ENV241	Engineering surveying	Basic	*		*		*							
	ENV242	Principles of environmental engineering	Basic	*	*	*									
	ENV243	Strength of materials	Basic	*		*									
	ENV244	Construction materials	Basic	*		*		*							
	ENV245	Remote sensing	Basic	*		*		*			*				
	UOMC	Electrical installation	Optional	*		*									
	ENV246	Engineering analysis	Optional	*		*									

	ENV247	Fluid Mechanics	Basic	*		*									
	ENV248	Water quality engineering	Basic	*		*		*							
	ENV249	GIS applications	Basic	*	*	*		*							
	ENV250	Building construction	Basic	*		*		*			*				
	ENV251	Hydrology	Basic	*		*									
	ENV252	Microbiology	Basic	*		*									
3	ENG329	Public safety	Basic	*						*					*
	ENG320	Numerical analysis	Optional	*		*									
	ENV340	Water supply networks	Basic	*	*	*									
	ENV341	Hydraulic applications	Basic	*		*									
	ENV342	Soil mechanics	Basic	*		*		*	*						
	ENV343	Air pollution	Basic	*		*									
	ENV344	Wastewater engineering	Basic	*		*									

	ENV345	Engineering research	Basic						*	*		*	*	*	
	UOMC	English language - intermediate	Basic							*	*				
	ENV346	Sanitary Sewer networks	Basic	*	*	*									
	ENV347	Foundation engineering	Basic	*	*	*									
	ENV348	Water chemistry	Basic	*		*									
	ENV349	Reinforcement concrete	Basic	*	*	*									
	ENV350	Solid waste	Basic	*	*	*									
	ENV390	Noise pollution	Optional	*	*	*	*								
	ENV391	Thermal and Radioactive pollution	Optional	*	*	*	*								
4	ENG425	Engineering management	Basic	*		*				*	*	*	*	*	*
	ENG436	Sustainable environmental engineering	Optional	*		*									
	ENV440	Drinking water treatment	Basic	*	*	*									

	ENV441	Wastewater treatment design	Basic	*	*	*	*								
	ENV442	Environmental construction design	Basic	*	*	*									
	ENV443	Air pollution control	Basic	*	*	*									
	ENV444	Engineering project 1	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	UOM	English language - advanced	Basic							*	*				
	ENG426	Engineering economic	Basic	*		*									
	ENV445	Industrial and petroleum wastewater	Basic	*	*	*									
	ENV446	Soil and ground water pollution	Basic	*	*	*									
	ENV447	Construction drawing	Basic	*	*			*			*				*
	ENV448	Estimation	Basic	*		*						*	*	*	*
	ENV449	Engineering project 2	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ENV490	Advanced water supply	Optional	*	*	*									