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

2024-2025

University of Warith Al-Anbiyaa/ Collage of Engineering



Aacademic Program Description Form

University Name: University of Warith AL-Anbiya

Faculty/Institute: College of Engineering

Scientific Department: Oil And Gas Department

Academic or Professional Program Name: Bachelor of Science degree (B.Sc.) in Oil and Gas Engineering

Final Certificate Name: Bachelor of Science degree (B.Sc.) in Oil and Gas Engineering

Academic Degree System: Bologna Process

Description Preparation Date: 2024/12/1

File Completion Date: 2024/12/1

Signature:

Head of Department Name: Dr. Dheiaa Alfarge

Date: 29/12/2024

Signature:

Scientific Associate Name: Dr.Hassan .T.Hashim

Date: 29/12/2024

The file is checked by: Dr. Salam Al-Rbeawi

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 29/12/2024

Signature:

Approval of the Dean

29/12/2024

Introduction:

The oil and gas engineering program at the University of Warith Al-Anbiyaa 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 will be 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.

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.

1. Program Vision

The oil and gas engineering department focuses on providing an efficient environment of science and knowledge that is related mainly to petroleum industry. The department offers deep insights of oil and gas engineering disciplines that are required for preparing qualified graduated students who could have a reasonable role in developing oil and gas resources. Furthermore, the department seeks to cultivate the leadership and excellence as well as challenge spirit and team work attitude in its graduated students.

2. Program Mission

The oil and gas engineering program at the University of Warith Al-Anbiyaa is committed to:

1- Graduating engineering staff equipped with an integrated leadership personality, very-well rounded skills, and cultivated by high profession ethics that could fulfill the requirements of the national and internationals oil and gas industry organizations.

2- Supporting and providing a significant scientific study and research platforms, knowledge transfer, and technology settlement that could enhance and develop our communities.

3- Sustaining a powerful scientific environment that could support the innovators, talented and smart students and researchers as well as enhancing the continuous education for the trephinations of oil and gas industry.

4- Providing the educational, academical, and professional mentoring in addition to the deeply consolidation of the national identity and loyal pertinence spirit.

3. Program Objectives

The objective of the oil and gas engineering program is represented, but not limited to, by graduation engineering staff who will:

1−Be successful practitioners of oil and gas engineering who can self−learning, developing, applying, and advancing technical knowledge for engineering problem solving and design purposes.

2− Demonstrate the desire for continuous learning, technical competence, and necessary well−rounded soft skills to advance in tier careers as well as leadership roles and supervisory and management positions.

3− Perform engineering duties with strong professionalism, ethical behavior and economic and social awareness.

4−Pursue a postgraduate education and enhance research capabilities at the major institutions, universities, and research centers of oil and gas industry.

5− Interact profoundly with the local communities by offering expertise, and consultations services as well as strengthen the relationships with the national and international organizations that are related to the petroleum industry.

4. Program Accreditation

The program currently following the Bologna education system. Right now, it has only three stages with no graduated students. The department is willing to apply for the national and international accreditation bodies as soon as the first generation of graduated students will be available.

5. Other external influences

There are no external influences from other parties on the department. However, there is an academic twining between our department and the oil and gas engineering department−University of technology−Baghdad.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	7	24	10%	Basic and support courses
College Requirements	14	64	27%	Basic and support courses
Department Requirements	31	152	63%	Core courses
Summer Training	1	Non–credited		
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
First year	UOW111	English language	2	
First year	OGE112	Principle of petroleum engineering	4	
First year	ENG113	Calculus, I	5	
First year	ENG114	Engineering mechanics and strength of materials	4	2
First year	UOW115	Computer programing, I	2	2
First year	ENG116	Workshop I		6
First year	ENG116	Workshop II		6
First year	OGE117	General geology I	2	2
First year	UOW121	Chemistry	4	2
First year	OGE122	General geology II	2	2
First year	ENG123	Calculus II	3	2

First year	ENG124	Engineering practices	2	
First year	ENG125	Engineering ethics	2	
First year	UOW126	Right and human democracy	2	
Second year	UOW211	Academic English writing	2	
Second year	ENG212	Ordinary differential equations	3	2
Second year	ENG213	Fluid mechanics I	3	1
Second year	ENG214	Computer programming II	2	2
Second year	OGE215	Structural geology	3	2
Second year	UOW204	Arabic language	2	
Second year	ENG216	Statistisc and optimization	3	2
Second year	UOW226	Crimes of the Baath regime in Iraq	2	
Second year	OGE221	Petroleum geology	3	1
Second year	OGE222	Properties and transportation of crude oil and gas	3	2
Second year	ENG223	Fluid mechanics II	3	2
Second year	OGE224	Petrophysics of reservoir engineering	3	2
Second year	ENG225	Physics and thermodynamics	4	2
Second year	ENG226	Partial differential equations	3	
Third year	OGE311	Drilling engineering, I	4	2
Third year	OGE312	Well logging and formation evaluation, I	4	2
Third year	OGE313	Production engineering, I	3	1
Third year	OGE314	Reservoir engineering, I (reservoir fluids)	3	2
Third year	OGE315	Geophysics and rock mechanics	4	
Third year	OGE316	Numerical solutions	4	
Third year	OGE321	Drilling engineering (casing design and cementing)	3	2
Third year	OGE322	Well logging and formation evaluation II	3	1
Third year	OGE323	Production engineering II	3	
Third year	OGE324	Reservoir engineering II (gas reservoirs)	3	1

Third year	**OGE325**	**Health, safety, and environment**	**2**	**1**
Third year	**OGE326**	**Risk analysis and petroleum economics**	**3**	**2**
Fourth year	**OGE411**	**Petroleum reservoir engineering**	**3**	**2**
Fourth year	**OGE412**	**Well control**	**3**	**1**
Fourth year	**OGE413**	**Well testing**	**3**	**1**
Fourth year	**OGE414**	**Natural gas engineering**	**2**	**1**
Fourth year	**OGE415**	**Integrated reservoir management I**	**3**	
Fourth year	**OGE416**	**Engineering project I**	**2**	
Fourth year	**OGE416**	**Engineering project II**	**2**	
Fourth year	**OGE421**	**Directional drilling and well design**	**3**	**2**
Fourth year	**OGE422**	**Workover and well stimulation**	**3**	**1**
Fourth year	**OGE423**	**Improved oil recovery**	**3**	**1**
Fourth year	**OGE424**	**Reservoir simulation**	**3**	**2**
Fourth year	**OGE425**	**Integrated reservoir management II**	**3**	

8. Expected learning outcomes of the program

Knowledge: A	
Learning Outcomes A1	An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.
Learning Outcomes A2	An ability to apply engineering design process to produce solutions that meet specified needs with consideration of public health, safety, and global, cultural, social, environmental, economic, and other factors as appropriate to the discipline.
Skills: B	
Learning Outcomes B1	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw a conclusion.
Learning Outcomes B2	An ability to communicate effectively with a range of audiences.
Learning Outcomes B3	An ability to recognize the ongoing need to acquire new knowledge, to choose appropriate learning strategies, and to apply this knowledge

Learning Outcomes B4	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
Ethics: C	
Learning Outcome C1	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments which must consider the impact of engineering solutions in global, economic, environment, and social context.

9. Teaching and Learning Strategies

The oil and gas engineering department strives to provide a comprehensive and rigorous education to its students who pursuing a Bachelor degree. It aims to equip them the necessary knowledge and skills to excel in their practical life. −

− Research and development:

The department promotes the cutting−edge research in the petroleum industry with a major focus given to the innovative technologies, reservoir characterization, drilling techniques, production optimization, and environmental sustainability.

− Industry collaboration:

The department seeks to establish strong ties with the petroleum industry and foster the collaboration and partnership. It aims to facilitates knowledge transfer, internship, and industry−sponsored projects to ensure students exposure to real−world challenges and opportunities.

− Professional development:

The department gives an attention to nurture students professional growth by encouraging participation in the professional societies, conferences, and workshops. Accordingly, the department provides guidance for students to pursue certifications, and licenses that could enrich their career readiness.

−Environmental responsibilities:

Recognizing the importance of the environmental stewardship, the department emphasizes the sustainable practices in the petroleum industry. The department educates students to minimize the environmental footprint, promote energy efficiency, and explore alternative energy resources.

−Diversity and inclusion:

The department values diversity and support an inclusive environment that welcomes students from different and diverse backgrounds. It promotes equal opportunities, and encourages underrepresented groups to pursue petroleum engineering education.

10. Evaluation methods

−Mid−term exams

−Final Exams

−Quizzes

−Assignments

−Technical reports

−Projects

−Seminars and presentations

11. Faculty

Faculty Members

Academic Rank	Specialization	Special Requirements/Skills (if applicable)	Number of the teaching staff

	General	Special			Staff	Lecturer
PhD–Professor	Science	Computer Science			1	
PhD–Professor	Mathematics	Mathmatics			1	
PhD–Lecturer	Petroleum Engineering	Enhanced oil recovery			1	
PhD–Lecturer	Petroleum Engineering	Reservoir and production engineering			1	
M.Sc. Assistant lecturer	Petroleum Engineering	Drilling engineering			1	
M.Sc. Assistant lecturer	Petroleum Engineering	Reservoir and production engineering			1	

Professional Development

Mentoring new faculty members

The oil and gas engineering department gives a great attention to mentor and guide the new faculty members that could join the education staff. It works very hard to reduce all the hardships and difficulties at the beginning of the new faculty member careers. This would include, but not limited to:

1- Introduce them to the department and collage staff.

2- Acknowledge them about the roles and instructions.

3- Assign the subjects that they could be more familiar with.

4- Acknowledge them about the classrooms, laboratories, and other department facilities.

Professional development of faculty members

The following procedures explain the steps implemented or in the process of implementation for the professional development of the faculty members:

1- Training programs and workshops inside and outside the university campus.

2- Support the extracurricular activities such as conferences, seminars, and presentations as well as personal and sport creativity either nationally or internationally.

3−Encourge the faculty member to gain the highest academic and administrative rank.

4−Provide the modern scientific resources such as textbooks, periodical journal, the electronic database.

6− Provide specialized software of the petroleum industry as well as easily access to the computer labs, and the internet services.

12. Acceptance Criterion

(Setting regulations related to enrollment in the college or institute, whether central admission or others)

Students' enrollment to the department is not central admission via the ministry of higher education admission department. It is an admission given to the students whose applications are submitted directly to the university. However, it follows the regulations of the ministry of higher education.

13. The most important sources of information about the program

The website of the university of Warith Al−Anbiyaa− Collage of Engineering:

(https://uowa.edu.iq/english/eng)

(https://uowa.edu.iq/english/eng/gasandoil/?page_slag=scientific)

14. Program Development Plan

The oil and gas engineering program at the university of Warith Al−Anbiyaa has a development plan that could enrich the educational environment. The plan is represented by the following highlights:

1− The continuous improvement of the curriculum and subject syllabus to line with the new trends in the petroleum engineering programs nationally and internationally. The objective is to maintain the highly qualified engineering staff that could satisfy the requirements of the organizations interested in the industry.

2- The desire to hire faculty members who have a significant educational expertise as well as a remarkable research performance.

3- Enhance the educational tools used in the classroom and the laboratories.

4- Strengthen the relationships with the communities and the industrial organization either national or international bodies.

5- Strengthen the relationships with the national and international universities who have the same interest on the petroleum industry.

Program Skills Outline																
				Required program Learning outcomes												
Year/Level	Course Code	Course Name	Basic or optional	knowledge		Skills				Ethics						
				A1	A2	B1	B2	B3	B4	C1						
First year	UOW111	English language	Basic							x						
	OGE112	Principle of petroleum engineering	Basic	x					x							
First year	ENG113	Calculus, I	Basic	x												
	ENG114	Engineering mechanics and strength of materials	Basic	x												
First year	UOW115	Computer programing, I	Basic	x				x								
	ENG116	Workshop I	Basic						x	x						
First year	ENG116	Workshop II	Basic						x	x						
	OGE117	General geology I	Basic	x												
First year	UOW121	Chemistry	Basic	x		x										

First year	OGE122	General geology II	Basic	x											
First year	ENG123	Calculus II	Basic	x											
First year	ENG124	Engineering practices	Basic						x	x					
First year	ENG125	Engineering ethics	Basic					x							
First year	ENG126	Right and human democracy	Basic					x							
Second year	UOW211	Academic English writing	Basic							x					
Second year	ENG212	Ordinary differential equations	Basic	x											
Second year	ENG213	Fluid mechanics I	Basic	x											

Second year	ENG214	Computer programming II	Basic	x					x						
Second year	OGE215	Structural geology	Basic	x											
Second year	UOW204	Arabic language	Basic							x					
Second year	ENG216	Statistisc and optimization	Basic	x						x					
Second year	UOW226	Crimes of the Baath regime in Iraq	Basic					x							
Second year	OGE221	Petroleum geology	Basic	x											
Second year	OGE222	Properties and transportation of crude oil and gas	Basic	x		x									
Second year	ENG223	Fluid mechanics II	Basic	x		x									

Second year	OGE224	Petrophysics of reservoir engineering	Basic	x											
Second year	ENG225	Physics and thermodynamics	Basic	x											
Second year	ENG226	Partial differential equations	Basic	x											
Third year	OGE311	Drilling engineering, I	Basic	x	x	x									
Third year	OGE312	Well logging and formation evaluation, I	Basic	x											
Third year	OGE313	Production engineering, I	Basic	x	x										
Third year	OGE314	Reservoir engineering, I (reservoir fluids)	Basic	x											
Third year	OGE315	Geophysics and rock mechanics	Basic	x											

Third year	OGE316	Numerical solutions	Basic	x												
Third year	OGE321	Drilling engineering (casing design and cementing)	Basic	x	x											
Third year	OGE322	Well logging and formation evaluation II	Basic	x												
Third year	OGE323	Production engineering II	Basic	x	x											
Third year	OGE324	Reservoir engineering II (gas reservoirs)	Basic	x												
Third year	OGE325	Health, safety, and environment	Basic					x								
Third year	OGE326	Risk analysis and petroleum economics	Basic	x	x											
Fourth year	OGE411	Petroleum reservoir engineering	Basic	x												

Fourth year	OGE412	Well control	Basic	x											
Fourth year	OGE413	Well testing	Basic	x											
Fourth year	OGE414	Natural gas engineering	Basic	x											
Fourth year	OGE415	Integrated reservoir management I	Basic	x											
Fourth year	OGE416	Engineering project I	Basic					x		x					
Fourth year	OGE416	Engineering project II	Basic					x		x					
Fourth year	OGE421	Directional drilling and well design	Basic	x	x										
Fourth year	OGE422	Workover and well stimulation	Basic	x	x										

Fourth year	**OGE423**	**Improved oil recovery**	**Basic**	**x**	**x**										
Fourth year	**OGE424**	**Reservoir simulation**	**Basic**	**x**											
Fourth year	**OGE425**	**Integrated reservoir management II**		**x**											