

Republic of Iraq
Ministry of Higher Education & Scientific Research
Supervision and Scientific Evaluation Directorate
Quality Assurance and Academic Accreditation
Fuel & Energy Techniques Engineering Department

Academic Program Specification Form For The Academic Year 2023-2024

University: Northern Technical University
College/Institute: College of Oil and Gas Techniques Engineering
Scientific Department: Department of Fuel and Energy Techniques Engineering

Dean's Name :

Deans Assistant For Scientific Affairs

Head of Department

Assist.Prof. Dr.Obid Majed Ali

Assist.Prof. Dr.Galawish Nouri Taher

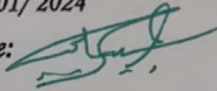
Dr. Morad Abdulwheed Radha

Date : 10/01/2024

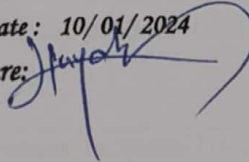
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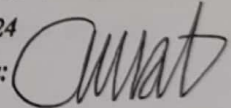
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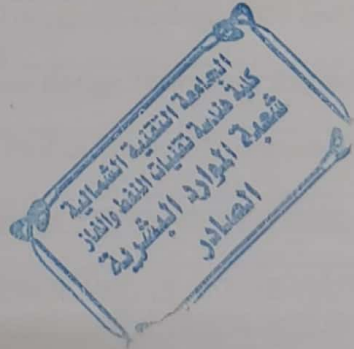


The College Quality Assurance
And University Performance
Manager

Maha Adnan Dawood

Date : 10/01/2024

Signature:



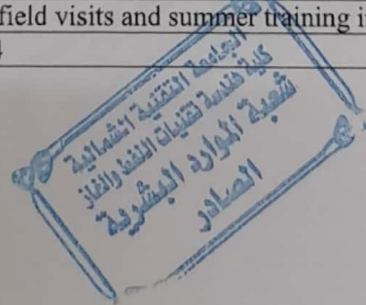
PROGRAMME SPECIFICATION

The Bachelor's degree program in Fuel and Energy Technology Engineering extends for four academic years. The academic year consists of two semesters: the first semester (fall) and the fall semester. Second (spring) semester = 14 academic weeks + one week allocated for rest before the exam + one week allocated for the exam.

Teaching is carried out according to the application of the Bologna educational path that can be developed and updated according to the requirements of the labor market in the governmental and private oil sectors that are related to the specialization of the scientific department. For each subject there is a formative assessment and a summative assessment. Formative assessment includes tasks and duties assigned by the subject professor to the student during one semester (daily exams, homework, reports, work projects, field visits, and discussions) and others according to the nature of the academic subject. As for the summative assessment, it consists of two parts: the mid-term exam and the final exam, and it may include a general exam. Leah.

Number of academic subjects during four years = 42 academic subjects. The total number of credits for academic subjects during four years required to complete graduation requirements = 240 European credits distributed approximately equally for each semester or year of study.

Educational Institution	Northern Technical University/ College of Oil and Gas Techniques Engineering /Kirkuk
Scientific Department	Department of Fuel and Energy Technology Engineering
Name of the academic or professional program	Bachelor Degree in Fuel and Energy Techniques Engineering
Name of the final certificate	Bachelor Fuel and Energy Techniques engineering
Academic system:	Bologna Process
Accredited accreditation program	Program of the Ministry of Higher Education and Scientific Research
Other external influences	Scientific, field visits and summer training in oil and gas companies
Date the description was prepared	07/01/2024



Objectives: The study of fuel and energy engineering technologies aims to the following:

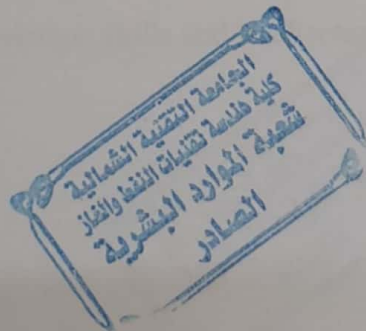
- 1- Preparing specialized engineers in the field of fuel production and finding new sources of energy.
- 2- Finding new ways to produce fuel and energy that are environmentally friendly and efficient in terms of mass.
- 3- Designing fuel and energy production equipment and units.
- 4- Conducting research and applied studies related to energy production.
- 5- Operating oil units and monitoring production lines and control.
- 3- Applying occupational safety procedures and procedures to reduce environmental pollution.
- 4- Familiarity with the procedures for maintaining and repairing production.
- 5- Monitor production lines and identifying faults.

10. Learning Outcomes, Teaching, Learning and Assessment

Methods A. Knowledge and Understanding:

A- Cognitive objective

- A1- It aims to know the analysis of chemical elements and calculations of material and energy balances.
- A2- It aims to know the operation of laboratory equipment and work with it.
- A3- It aims to know the science of organic chemicals.
- A4- It aims to know the science of internal combustion engines, mass and heat transfers.
- A5- It aims to learn mathematics and engineering analyses.
- A6- It aims to know how to follow industrial safety procedures and protect the environment from pollution.
- A7. Understanding of the importance of manufacturing process to the economy and design.



B. Subject-specific skills

B1 Skills objectives of the program:

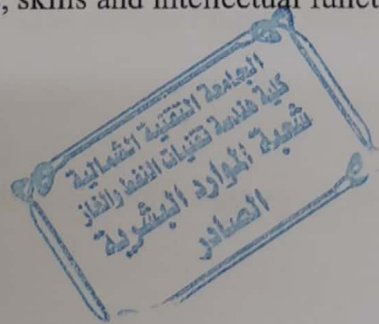
- B 1 - aims to learn the skill of computer operation and organization work.
- B2 - aims to learn the skill of operating oil and gas refining units
- B3 - aims to learn the skill of designing and establishing laboratories.
- B-4 aims to learn the skill of monitoring production lines.
- B5 - It aims to learn the skill of scientific research through the implementation of the engineering project (study subject).
- B6- It aims to learn the skill of leadership and working within a team.
- B7. Ability to fit an experimental data.

Teaching and Learning Methods

Through the presentation of a theoretical explanation with the aid of white board and 'Data Show', to illustrate syllabus (examples and exercises) and using text .books

Assessment methods

- 1-Written examination : To assess knowledge , understanding and skills (Formative assessment + Mid-year exam and final exam of each semester in the academic year).
- 2- Oral examination: To assess knowledge, skills and intellectual functions, and attitude.
- 3-Assignments & other activities.
- 4-Quizzes (Shock exams).
- 5-homwork.

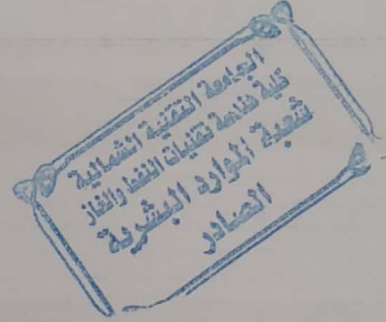


C. Thinking Skills

- C1. Reading, Writing, Speaking and Listening for English language
- C2. Apply mathematics to everyday life problems.
- C3. Recognize the uses of commands in programs.
- C4. Distinguishes between design – code – run parts and use different objects in creating the programs and understand algorithms, language abilities and reasons to use.
- C5 - Creating educational cadres that can be relied upon in state institutions within the specialization.
- C 6 - Develop solutions to problems that occur in institutions and systems specialized in the field of fuel.
- C 7 - Work to create the requirements of the labor market and raise the economic capacity.
- C8- Preparing engineering cadres who can assume responsibility for leadership and teamwork.
- C 9 - Respect the time, laws and instructions, and follow the instructions and directives issued by the Supreme Council.

Teaching and Learning Methods:

- 1- Lectures using white board and data show
- 2- Experimental part
- 3- Discussion about the practical application



Assessment methods

- 1 -written examination, 2- oral examination, 3- quizzes, 4 – homework, 5- reports, 6- Seminar.

D. General and Transferable Skills (other skills relevant to employability and personal development)

- D1 - Communication and conversation skills such as English language and presentation skill.
- D 2 - teamwork skills.
- D 3- Leadership skills and responsibility.
- D4 - Skills of self-education and self-reliance in following up on scientific developments.

Level	Semester	No.	Module Code	Module Name in English	Language	SSWL (hr/w)					ECTS	Module Type		
						CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)			Semr (hr/w)	
Five		1	FEK301	Mass Transfer	English	4		2		1	1	7.00	C	
		2	FEK302	Engineering Analysis	English	4				1	1	6.00	C	
		3	FEK303	Environmental Pollution and Industrial Safety	English	2					1	1	4.00	S
		4	FEK304	Thermodynamics	English	4		2		1		1	7.00	C
		5	FEK305	Gas Technology	English	2		2		3		4	6.00	C
Total						16	0	6	0	3	4	30.00		
Six		1	FEK306	Heat Transfer	English	4		2		1	1	7.00	C	
		2	FEK307	Numerical Analysis	English	2		2			1	1	5.00	C
		3	FEK308	Internal Combustion Engine	English	2		2			1	1	6.00	E
		4	FEK309	Fuel Cell Technology	English	2		2			1	1	6.00	E
		5	FEK310	Energy Resources	English	2		2			1	1	6.00	C
Total						12	0	10	0	2	4	30.00		
Seven		1	FEK401	Plants and Equipment Design	English	2		2		2	1	8.00	C	
		2	FEK402	Combustion and Explosion Technology	English	2		2		1	1	6.00	C	
		3	FEK403	Control and Measuring Engineering	English	2		2		1	1	5.00	B	
		4	FEK404	Sustainable Energy	English	2				1	1	6.00	C	
		5	NTU 400	Methodology of Scientific Research	English	1		4		2	1	1	5.00	C
Total						9	0	4	2	4	5	30.0		
Eight		1	FEK406	Process of Unit Operation	English	2		2		1	1	7.00	C	
		2	FEK407	Power Plants	English	2		2		1	1	6.00	C	
		3	FEK408	Modelling and Simulation	English	1		2		1	1	6.00	C	
		4	FEK409	Reactors Design	English	2				1	1	6.00	C	
		5	COGTEK 401	Graduation Project	English	1		2		2	1	1	5.00	C
Total						8	0	6	3	4	5	30.0		

Note: The student should complete 4 weeks of Summer Internships to fulfill the requirements of the Bachelor's degree.

Structured SWL (hr/w) type	CL Class Lecture	Lab Laboratory	Pr Practical Training	Tut Tutorial	Lect Online lecture	Semr Seminar	SSWL (hr/w)			ECTS	Module Type	
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)			
	B	C	S	E			Basic learning activities	Core learning activity	Support or related learning activity	Elective learning activity	SSWL: Structured Student Workload	ECTS: European Credit Transfer System

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Level	Semester	No.	Module Code	Module Name In English	Language	SSWL (hr/w)						ECTS	Module Type						
						CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)								
Five		1	FEK301	Mass Transfer	English	4		2		1	1	7.00	C						
		2	FEK302	Engineering Analysis	English	4				1	1	6.00	C						
		3	FEK303	Environmental Pollution and Industrial Safety	English	2				1		4.00	S						
		4	FEK304	Thermodynamics	English	4		2			1	7.00	C						
		5	FEK305	Gas Technology	English	2		2			1	6.00	C						
		Total						16	0	6	0	3	4	30.00					
Thrd	Semester	No.	Module Code	Module Name In English	Language	SSWL (hr/w)						ECTS	Module Type						
						CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)								
						1	FEK306	Heat Transfer	English	4				2			1	7.00	C
						2	FEK307	Numerical Analysis	English	2				2			1	5.00	C
						3	FEK308	Internal Combustion Engine	English	2				2			1	6.00	E
						4	FEK309	Fuel Cell Technology	English	2				2			1	6.00	E
5	FEK310	Energy Resources	English	2		2			1	6.00	C								
Total						12	0	10	0	2	4	30.00							
Level	Semester	No.	Module Code	Module Name In English	Language	SSWL (hr/w)						ECTS	Module Type						
						CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)								
						1	FEK401	Plants and Equipment Design	English	2						2	1	8.00	C
						2	FEK 402	Combustion and Exploson Technology	English	2				2		1	1	6.00	C
						3	FEK 403	Control and Measuring Engineering	English	2				2			1	5.00	B
						4	FEK 404	Sustainable Energy	English	2						1	1	6.00	C
5	NTU 400	Methodology of Scientific Research	English	1			2		1	5.00	C								
Total						9	0	4	2	4	5	30.0							
Fourth	Semester	No.	Module Code	Module Name In English	Language	SSWL (hr/w)						ECTS	Module Type						
						CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)								
						1	FEK406	Process of Unit Operation	English	2				2		1	1	7.00	C
						2	FEK407	Power Plants	English	2				2		1	1	6.00	C
						3	FEK408	Modeling and Simulation	English	1				2	1	1	1	6.00	C
						4	FEK409	Reactors Design	English	2						1	1	6.00	C
5	COGTEK 401	Graduation Project	English	1			2		1	5.00	C								
Total						8	0	6	3	4	5	30.0							

Note: The student should complete 4 weeks of Summer Internships to fulfil the requirements of the Bachelor's degree

Structured SWL (hr/w) type	CL	Class Lecture	B	Basic learning activities	SSWL: Structured Student Workload		
	Lab	Laboratory		C		Core learning activity	ECTS: European Credit Transfer System
	Pr	Practical Training		S		Support or related learning activity	
	Tut	Tutorial		E		Elective learning activity	
	Lect	Online lecture					
	Semn	Seminar					

الجامعة التقنية الشمالية
كلية هندسة تقنيات النفط والغاز
شعبة الموارد البشرية
الصادر