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Accreditation
Accreditation Department

Warith Al-Anbiya University - Faculty of Engineering

Description of the Academic Program and Course of the Department of Refrigeration and Air Conditioning Technology Engineering

2024-2025

نموذج وصف البرنامج الأكاديمي

اسم الجامعة: جامعة وارث الأنبياء (ع)

الكلية/ المعهد: كلية الهندسة

القسم العلمي: قسم هندسة تقنيات التبريد والتكييف

اسم البرنامج الأكاديمي او المهني: بكالوريوس , هندسة تقنيات التبريد والتكييف

اسم الشهادة النهائية: بكالوريوس في هندسة تقنيات التبريد والتكييف

النظام الدراسي: سنوي+ فصلي

تاريخ اعداد الوصف: 1/12/2024

تاريخ ملء الملف: 1/12/2024

التوقيع:

اسم رئيس القسم : أ.م. د محمد حسن عبود

التاريخ 1/12/2024

التوقيع:

اسم المعاون العلمي : م.د حسن طالب هاشم

التاريخ : 1/12/2024

دقق الملف من قبل

شعبة ضمان الجودة والأداء الجامعي

اسم مدير شعبة ضمان الجودة والأداء الجامعي:م.د. سلام جبار

التاريخ : 1 / 12/ 2024

مصادقة السيد العميد

أ.م.د حسين هادي حسين

1. Program Vision

To be a center of excellence for applied engineering and scientific research, which contributes to preparing cadres capable of innovation and developing sustainable solutions in the fields of refrigeration, air conditioning, and energy, in line with global developments and responding to the needs of society and the labor market.

2. Program Mission

The Department of Refrigeration and Air Conditioning Technologies Engineering works to provide high-quality engineering education that combines the theoretical and practical aspects, and focuses on providing students with scientific knowledge, technical skills, and the ability to solve engineering problems using modern technologies. The department also seeks to create a stimulating learning and research environment that qualifies graduates to work efficiently in industrial and service institutions, and promotes the values of professional commitment, continuous learning, and community service.

3. Program Objectives

1- Preparing engineering cadres specialized in the field of refrigeration and air conditioning capable of designing, implementing, and maintaining, using modern technologies.
2- Promoting applied scientific research in the fields of thermal energy, air conditioning systems, and renewable energy in line with national and international trends.
3- Develop students' critical thinking and innovation skills to enable them to solve engineering problems and provide sustainable solutions.

4- Building effective partnerships with the industrial and service sectors to enhance the alignment of program outputs with the requirements of the labor market.
5- Develop professional values and commitment by establishing professional ethics, respect for safety and health standards, and social responsibility.
6- Contribute to sustainable development by employing energy-efficient and environmentally friendly refrigeration and air conditioning technologies.

4. Program Accreditation

Work is underway to adopt the requirements of the Bologna track to achieve and ensure the quality of learning in the Department of Refrigeration and Air Conditioning Technologies Engineering in coordination with the corresponding faculty, which is the Faculty of Engineering Technologies at the Central University of Baghdad

5. Other External Influences

There are no external influences from third parties on the department.

However, there is an academic twinning between our department and the Department of Oil and Gas Engineering at the University of Technology in Baghdad.

6. Program Structure (Courses System)

Reviews*	Percentage	Study Unit	Number of Courses	Program Structure
Core Course	8%	15	5	Enterprise Requirements
Core Course	13%	42	7	College Requirements
Core Course	78%	136	30	Department

				Requirements
Core Course		Updated	Two months	Summer Training
				Other

* It is possible to include notes on whether the course is basic or elective.

7. Program Structure (Bologna Curriculum)				
Reviews*	Percentage	Study Unit	Number of Courses	Program Structure
Core Course	8%	15	5	Enterprise Requirements
Core Course	13%	42	7	College Requirements
Core Course	83%	201	31	Department Requirements
Core Course		Updated	Two months	Summer Training
				Other

* It is possible to include notes on whether the course is basic or elective.

1. Program Description

Credit Hours		Course or course name	Course or course code	Year/Level
Practical	Theoretical			
	6	**Mathematics**	ENG 100	Phase I First Course
4	2	**Engineering Drawing**	ENG 101	
8		**Workshops**	ENG 102	
	4	**Engineering Materials**	MPAC103	
	3	**English I**	UOW 104	
4	4	**Electrical Engineering**	MPAC106	First Stage (Second Course)
	6	**Engineering Mechanics**	ENG 107	
4	6	**Thermodynamics 1**	MPAC108	
	2	**Humans Rights and Democracy**	UOW 109	
	2	**Arabic I**	UOW 110	
2	2	**Computer principles**	UOW 111	
	6	**Advanced Mathematics**	**MPAC 200**	Phase II (First Course)
6	2	**Mechanical Drawing**	**MPAC 201**	
4	4	**Fluid Mechanics**	**MPAC 202**	
4	6	**Thermodynamics 2**	**MPAC 203**	
	2	**The crimes of the Baath regime in Iraq**	**UOW 204**	
4	6	**Fundamentals of Air Conditioning and Refrigeration**	**MPAC205**	Phase II (Second Course)
4	4	**Strength of Materials**	**MPAC206**	
2	2	**Matlab**	**MPAC207**	
	3	**English 2**	**UOW 208**	
	2	**Arabic 2**	**MAPAC 209**	
-	-	**Summer Training 1**	**MPAC210**	
	4	**Engineering and Numerical Analysis**	**ENG 300**	Third Stage
2	1	**Computer Applications 2**	**MPAC301**	
	3	**Theory of Machine and Vibrations**	**MPAC302**	
2	3	**Heat Transfer**	**MPAC303**	
1	2	**Air Conditioning and Refrigeration systems**	**MPAC304**	
	3	**Mechanical Design**	**MPAC305**	
3	1	**Maintenance of Air Conditioning systems**	**MPAC307**	
	2	**English 3**	**MPAC308**	
2	1	**Air Conditioning systems Drawing**	**MPAC309**	
2	3	**Electrical and Electronic Engineering**	**MPAC311**	
-	-	**Summer Training 2**	**MPAC310**	

	6	**Project**	**ENG 400**	Fourth Stage
2	2	**Air Conditioning System Design**	**MPAC401**	
2	3	**Power Plants**	**MPAC402**	
2	1	**Computer Applications 3**	**MPAC404**	
	3	**Industrial Engineering Management**	**MPAC405**	
2	3	**Refrigeration Systems**	**MPAC406**	
	3	**Renewable Energy**	**MPAC407**	
	2	**Professional Ethics**	**ENG 408**	
	2	**English 4**	**MPAC409**	
1	3	**Control and Measurements**	**MPAC410**	

8. Expected Learning Outcomes of the Program

Graduates of the program have:

Knowledge: A

A-1 - Ability to identify, formulate and solve engineering problems through the application of the principles of engineering, science and mathematics

A.2. The ability to apply engineering design to produce solutions that meet specific needs while taking into account public health, safety, global, cultural, social, environmental, economic, and other factors appropriate to the specialization.

Skills: B

B.1. Ability to develop and conduct appropriate experiments, analyze and interpret data, and use engineering judgment to draw conclusions.

B.2. Ability to communicate effectively with a group of audiences

B.3. Ability to recognize the constant need to acquire new knowledge, choose appropriate learning strategies, and apply this knowledge

B-4 Ability to work effectively in a team whose members together provide leadership, create an inclusive collaborative environment, set goals, plan tasks, and achieve goals

Values: C

C.1 Ability to recognize ethical and professional responsibilities in engineering situations and to make informed judgments, which must take into account the impact of engineering solutions in the global, economic, environmental and social context

9. Teaching and Learning Methods

There are many teaching and learning methods used in the engineering branch of refrigeration and air conditioning technologies, the most important of which are theoretical and practical lectures. The use of computer programs in various disciplines of refrigeration and air conditioning, discussion, dialogue and scientific trips. Seminars on specific topics, students' theoretical and practical research, office activities, which help students reach the following results:

1- Engineering ability to distinguish between correct and wrong information .
2- Ease of scientific formulation and ease of correction.
3- The ability to memorize and guess.
4- The ability to link engineering concepts, principles, and instructions .
5- The ability to summon, connect, and interpret.
6- The ability to link theoretical information to the process and what is happening on the job site.

10.Evaluation Methods

A. Written Exams .
B. Quick Quiz Exams.
C. Writing scientific reports.
d. Household duties.
H. Scientific seminars.
c. Graduation projects discussion committees.

11.Faculty

Faculty Members						
Preparing the teaching staff		Special requirements /skills (if applicable)		Specialization		Academic Rank
lecturer	angel			special	year	
	1			Air conditioning and freezing machinery and equipment	Mechanical Engineering	teacher
	1			Fluid Mechanics	Mechanical Engineering	Lecturer Doctor
	1			Motion Systems Technologies Engineering	Mechanical Engineering	teacher
	1			Refractory Mechanics	Mechanical Engineering	Lecturer Doctor
	1			Refrigeration & Air Conditioning Engineering	Mechanical Engineering	Professor Doctor
	1			Refractory Mechanics	Mechanical Engineering	Assistant Professor Doctor
	1			Intelligent Manufacturing Systems	Industrial Engineering	Professor Doctor
	1			Refractory Mechanics	Mechanical Engineering	Assistant Professor Doctor
	2			Refractory Mechanics	Mechanical Engineering	Assistant Lecturer
	1			الالكترونيك	Electrical Engineering	Assistant Lecturer
	1			Applied Mechanics	Mechanical Engineering	Assistant Lecturer

	1			Artificial Intelligence	Computer Science	Assistant Lecturer
1				Refractory Mechanics	Mechanical Engineering	teacher
1				Communication Engineering	Electrical and Electronics Engineering	Assistant Professor Doctor
2				Refractory Mechanics	Mechanical Engineering	Assistant Lecturer
1				energy generation	Mechanical Engineering	Lecturer Doctor
1				Energy electromechanical	Electromechanical Engineering	Assistant Lecturer
1				Applied Mechanics	Polymer Engineering	teacher
1				Environmental Engineering	Environmental Engineering	Assistant Lecturer
1				Applied Mechanics	Mechanical Engineering	Assistant Professor Doctor
1				Refractory Mechanics	Mechanical Engineering	Professor Doctor
1				Refractory Technologies Engineering	Strong mechanics	Assistant Lecturer
1				Mechanical Engineering	Mechanical Engineering	Assistant Lecturer
1				Civil Code	Special Law	Assistant Lecturer

Professional Development

Mentoring new faculty members

The Department of Refrigeration and Air Conditioning Technologies adopts an organized process to guide new, visiting, and interested faculty members, starting with an official reception and introducing them to the institution's policies, vision, and mission, and then providing an overview of the department's administrative and academic structure. This is followed by organizing introductory meetings with the teaching and administrative staff,

and providing an introductory guide containing academic and educational procedures. They are also provided with lecture schedules and study plans, and directed to the department's academic facilities and technical workshops. The process concludes with the appointment of an academic advisor or coordinator to follow up Adapt them and provide the necessary support during their first period of joining.

Professional Development of Faculty Members

The plan is based on developing faculty competencies through periodic programs that include workshops and training courses in effective teaching strategies, active learning, and e-learning. The plan enhances course design skills and updates content in line with the demands of the labor market, with a focus on developing tools to evaluate and analyze learning outcomes to improve the quality of education. The plan also includes activities for continuous professional development, such as attending conferences, scientific publishing, and research collaborations. The implementation of this plan is followed up through periodic evaluations of the performance of the faculty members and the provision of constructive feedback that contributes to raising the academic and professional level within the institution.

12.Admission Criteria (Setting Regulations for Admission to a College or Institute)

A. Admission Requirements for the College:
B. Approval of the admission conditions for students in accordance with the instructions issued by the Ministry of Higher Education and Scientific Research (Central Admission).
c. Be medically fit for the specialty to which you are applying
d. Admission requirements in the scientific department.
C- Choosing the student's desire from more than one wish, arranged according to preference
H. High School Graduation Rate
g. The capacity of the scientific department.

13.Key sources of information about the program

1. Accredited Sources in International Universities
2.Twinning with the Central Technical University
3. Local trends

4. Market Needs
5. Studies and Questionnaires
6. Specialized seminars and workshops with the beneficiaries
7. Internet (Internet)

14.Program Development Plan

The Department of Refrigeration and Air Conditioning Technologies Engineering focuses on continuous improvement, as the department always seeks to improve the scientific and administrative process and overcome all difficulties and obstacles that hinder the educational program by developing human resources for personal development.

The following actions outline the steps implemented or in the process of being implemented in this area:

1. Continuous improvement and development of faculty members through training programs and workshops inside and outside the department and the university.
2. Increasing extra-curricular activities such as holding conferences, scientific seminars, and personal and sports creations locally, regionally, and internationally.
3. Encouraging faculty members to obtain the highest scientific and administrative ranks.
4. Providing specialized software in the engineering of refrigeration and air conditioning technologies and the necessary computers for this with internet lines for all teaching staff.

Curriculum Skills Chart

Please indicate the boxes corresponding to the individual learning outcomes from the program being evaluated

Learning Outcomes Required from the Program												Basic or elective	Course Name	Course Code	Year / Level
Thinking skills				Subject-specific skills				Knowledge and Understanding							
4C	3C	2C	1c	4B	3B	2B	1B	4a	3a	2a	1a				
√	√	√	√	√	√	√	√	√	√	√	√	Essential	Human rights	MPAC110	Phase I
√	√	√	√	√	√	√	√			√	√	assistant	Math 1	MPAC100	
		√	√			√	√				√	elective	Applications Calculator 1	MPAC112	
	√	√	√		√	√	√		√	√	√	Essential	Drawing Engineering	MPAC101	
√	√	√	√		√	√	√	√	√	√	√	Essential	Mechanics	MPAC108	
√	√	√	√		√	√	√	√	√	√	√	Essential	Technology Electricity	MPAC107	
√	√	√	√		√	√	√	√	√	√	√	Essential	modulus	MPAC102	
√	√	√	√	√	√	√	√	√	√	√	√	Essential	Materials Engineering	MPAC103	
√	√	√	√	√	√	√	√	√	√	√	√	Essential	Dynamic Heat 1	MPAC109	

√	√	√	√													assistant	Language English	MPAC104	
√	√	√	√													Essential	Arabic Language	MPAC111	

Curriculum Skills Chart															
Please indicate the boxes corresponding to the individual learning outcomes from the program being evaluated															
Learning Outcomes Required from the Program												Basic or elective	Course Name	Course Code	Year / Level
Thinking skills				Subject-specific skills				Knowledge and Understanding							
4C	3C	2C	1c	4B	3B	2B	1B	4a	3a	2a	1a				
√	√	√	√		√	√	√		√	√	√	assistant	Math 2	MPAC200	Phase II
		√	√			√	√			√	√	assistant	Calculator Apps 2	MPAC207	
√	√	√	√		√	√	√	√	√	√	√	Specialization	Resistant Materials	MPAC206	

√	√	√	√	√	√	√	√	√	Specialization	Thermodynamics 2	MPAC203	
√		√	√	√	√	√	√	√	Specialization	Mechanical Drawing	MPAC201	
√		√	√	√	√	√	√	√	Specialization	Fluid Mechanics	MPAC202	
√		√	√	√	√	√	√	√	Specialization	Refrigeration & Air Conditioning 1	MPAC205	
									year	English 2	MPAC208	
√					√	√	√	√	assistant	Baath Party Crimes in Iraq		

Curriculum Skills Chart

Please indicate the boxes corresponding to the individual learning outcomes from the program being evaluated

Learning Outcomes Required from the Program												Basic or elective	Course Name	Course Code	Year / Level
Thinking skills				Subject-specific skills				Knowledge and Understanding							
4C	3C	2C	1c	4B	3B	2B	1B	4a	3a	2a	1a				
√	√	√	√		√	√	√		√	√	√	assistant	Calculator Apps 3	MPAC301	
		√	√		√	√	√			√	√	assistant	Engineering Analytics	MPAC300	

												and numerical		
√	√	√	√		√	√	√		√	√	√	Specialization	**Electrical Engineering and electronic**	**MPAC311**	**Third Stage**
	√	√	√				√			√	√	Specialization	**Theory of Machines and vibrations**	**MPAC302**	
√	√	√	√	√	√	√	√	√	√	√	√	Specialization	**Heat Transfer**	**MPAC303**	
	√	√	√		√	√	√	√	√	√	√	Specialization	**Design Mechanical**	**MPAC305**	
√	√	√	√		√	√	√	√	√	√	√	Specialization	**Drawing Systems Refrigeration & Air Conditioning**	**MPAC309**	
√	√	√	√		√	√	√	√	√	√	√	Specialization	**Hardware Maintenance Refrigeration & Air Conditioning**	**MPAC307**	
√	√	√	√		√	√	√	√	√	√	√	Specialization	**Refrigeration & Air**	**MPAC304**	

													Conditioning 2		

												year	**English 3**	**MPAC308**	

Curriculum Skills Chart															
Please indicate the boxes corresponding to the individual learning outcomes from the program being evaluated															
Learning Outcomes Required from the Program												**Basic or elective**	**Course Name**	**Course Code**	**Year / Level**
Thinking skills				**Subject-specific skills**				**Knowledge and Understanding**							
4C	**3C**	**2C**	**1c**	**4B**	**3B**	**2B**	**1B**	**4a**	**3a**	**2a**	**1a**				
√	√	√	√		√	√	√		√	√	√	General	**Engineering Management and Quality Control**	**MPAC405**	**Fourth Stage**
√	√	√	√			√	√	√	√	√	√	Help	**Calculator Apps 4**	**MPAC404**	
√	√	√	√		√	√	√	√	√	√	√	Specialization	**Freezing Systems**	**MPAC406**	
√	√	√	√		√	√	√	√	√	√	√	Specialization	**Air Conditioning Systems**	**MPAC401**	
√	√	√	√		√	√	√				√	Specialization	**Renewable Energy**	**MPAC407**	

√	√	√	√		√	√	√	√	√	√	√	Specialization	Control Circles	MPAC410	
√	√	√	√		√	√	√	√	√	√	√	Specialization	Power Plants	MPAC402	
												General	English 4	MPAC409	
												Specialization	Project	MPAC400	
√	√	√	√	√	√	√	√	√	√	√	√	General	Ethics	MPAC408	