



Warith Al-Anbiya University / Faculty
of Engineering
Ministry of Higher Education and
Scientific Research



Scientific Supervision and Evaluation
Authority

Quality Assurance and Academic
Accreditation Department



Academic Program Description Guide and Course

2025-2026

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Warith Al-Anbiya University/Faculty
of Engineering
Academic Program Description
Form



University Name: **Warith Al-Anbiya University**

College/Institute: **College of Engineering**

Scientific Department: **Department of Refrigeration and Air
Conditioning Technologies Engineering**

Academic or Professional Program Name: **Bachelor, Refrigeration and
Air Conditioning Technology Engineering**

Final Certificate Name: **Bachelor of Refrigeration and Air
Conditioning Technology Engineering**

Academic System: **Bologna for Stages (First, Second and Third)**

Description preparation date: 17/08/2025

25/08/2025 :File Date Filled

الوقيع: 
اسم المعاون العلمي: د.م. حسن طالب هاشم
التاريخ: 01/09/2025

الوقيع: 
اسم رئيس القسم: أ.م. د محمد حسن عبود
التاريخ: 27/08/2025



Endorsed by the Dean

دقق الملف من قبل
شعبة ضمان الجودة والأداء الجامعي
اسم مدير شعبة ضمان الجودة والأداء الجامعي: د.د. سلام جبار
التاريخ: 15/09/2025
الوقيع: 

1. Program Vision

Leadership and excellence in technical education and applied research in the fields of refrigeration, air conditioning, thermal and energy systems, by preparing qualified technical cadres capable of innovating and developing sustainable engineering solutions, and keeping pace with technological developments and the needs of the labor market and serving the community.

2. Program Mission

The Refrigeration and Air Conditioning Technologies Program is committed to providing high-quality technical education that combines scientific knowledge and applied skills, and qualifies students to design, operate, install, maintain and inspect refrigeration, air conditioning and thermal systems, and employ modern technologies in analyzing problems and finding appropriate solutions, while promoting applied scientific research, continuous learning, professional ethics, safety and environmental responsibility, in a way that meets the needs of the labor market and contributes to achieving sustainable development and community service.

3. Academic Program Objectives

- 1- The program seeks to achieve the following objectives after the graduation of students and their professional practice:
- 2- To prepare graduates with a solid scientific and technical foundation in the engineering of refrigeration and air conditioning technologies, enabling them to work efficiently in various industrial and service sectors.
- 3- Enable graduates to design, operate and maintain refrigeration and air conditioning systems in accordance with approved engineering standards and quality, safety and energy requirements.
- 4- Developing the graduates' abilities to analyze engineering problems and propose appropriate solutions using scientific methods and modern techniques.
- 5- Enhancing the continuous learning and self-development skills of graduates to keep pace with technological developments and the requirements of the profession.
- 6- Prepare graduates who are able to work in multidisciplinary teams and communicate effectively in the engineering work environment.
- 7- Establish a commitment to professional ethics, social responsibility, environmental conservation, and sustainable use of energy sources.

4. Program Accreditation

The program seeks to obtain program accreditation in the near future, as part of its strategic plans to improve the quality of academic programs and align them with national and international accreditation standards.

5. Other External Influences

There are currently no external sponsors or sponsors of the program. The program relies entirely on resources and capabilities available within the university, such as libraries, labs, software, and infrastructure.

6. Program Structure (Bologna Curriculum)

Notes*	Percentage	Study Unit	Number of Courses	Program Structure
Core Course	4.8%	11	5	Enterprise Requirements
Core Course	18.5%	42	7	College Requirements
Phase I, II and III (Bologna Route)	76.7%	174	31	Department Requirements
Includes a summer training for fourth grade students for two hours		Completed/ Unfulfilled	Two months	Summer Training
				Other

* Notes may include whether the course is basic or elective.

7. Program Description for Phase IV

Course Modules	Credit Hours		Course or course name	Course or course code	Year/Level
	practical	theoretical			
8		6	Mathematics	ENG100	First Level First Semester
6	4	2	Engineering Drawing	ENG101	
8	8		Laboratories	ENG102	

6		4	Materials Engineering	MPAC103	
2		3	English	UoW1002	
7	2	4	Electrical Engineering	MPAC107	First Level Second Semester
8		4	Engineering Mechanics	MPAC108	
8	4	6	Thermodynamics	MPAC109	
2		2	Human Rights and Democracy	UoW1006	
2		2	Arabic Language	UoW1001	
3	2	2	Computer Principles	UoW1004	
6	-	4	Advanced Mathematics	ENG 200	
6	4	2	Mechanical Drawing	ENG 201	Level II Chapter One
6	4	4	Fluid Mechanics	MPAC 202	
10	4	6	Thermodynamics2	MPAC 203	
2	-	2	Baath Party Crimes	UoW1007	
12	4	6	Refrigeration & Air -1-Conditioning	MPAC205	
11	4	4	Resistant Materials	MPAC206	Second Level Second Semester
3	2	2	MATLAB-1	MPAC105	
2	-	2	Language 2 Arabic	UoW1009	
2	-	3	2English	UoW1003	
-	-	-	1Summer Training	MPAC210	
4		4	Numerical and geometric analyses	MPAC300	
3	2	2	Computer Applications-2	UoW301	Level III Chapter One
5	4	4	Theory of Machines and Vibrations	MPAC302	
8	4	4	Heat Transfer	MPAC303	

10	4	4	Refrigeration & Air Conditioning	MPAC304	Level III Chapter Two
8	4	4	Mechanical Design	MPAC305	
8	6	2	Refrigeration & Air Conditioning Maintenance	MPAC306	
8	6	2	Drawing Refrigeration and Air Conditioning Systems	MPAC308	
6	2	4	Electrical and Electronics Engineering	MPAC309	
-	-	-	2Summer Internship	MPAC310	

8. Expected Learning Outcomes of the Program

Skills

1. Analyzing engineering problems related to refrigeration and air conditioning systems and proposing appropriate solutions to them.
2. Designing refrigeration and air conditioning systems according to performance and efficiency requirements.
3. Conducting laboratory experiments, interpreting results, and analyzing data.
4. Use of modern technologies and engineering software in analysis and design.
5. Carry out operation, maintenance and fault diagnostics in thermal systems.
6. Prepare technical reports and communicate effectively in the work environment.
7. Efficiently manage time and resources within engineering projects.
8. Keeping abreast of scientific and technical developments through continuous learning.

Knowledge

1. Demonstrate a solid understanding of the fundamentals of mathematics and engineering sciences associated with the refrigeration and air conditioning discipline.
2. Understand the principles of thermodynamics, heat transfer, and fluid mechanics and their application in thermal systems.
3. Identify the components and types of refrigeration and air conditioning systems and their mechanism of action.

4. Familiarity with the standard specifications and engineering standards adopted in the design and operation of HVAC systems.
5. Understand the impact of environmental and economic factors on the performance and efficiency of thermal systems.

Ethics

1. Engineering professional ethics and integrity in scientific and practical performance.
2. Assume professional responsibility in the design and operation of refrigeration and air conditioning systems.
3. Considering occupational safety and environmental protection during work.
4. Respect the relevant national and international laws and standards.
5. Promote teamwork and collaboration with other disciplines.

9. Teaching and Learning Strategies

- ❖ Lecture
- ❖ Laboratory
- ❖ Workshop
- ❖ Methodological Training
- ❖ Scientific Visits

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.**
- **C. Emotional and Values Goals:**
 1. **Ability to solve engineering and administrative problems in effective engineering ways.**

- **2. Developing the spirit of cooperation and teamwork between engineers and geologists to serve the public interest.**
- **3. Developing the student's ability and ability to deal with modern technologies related to the course vocabulary.**
- **Developing the student's ability to make engineering and administrative decisions.**

11. Faculty

Faculty Members					
Preparing the teaching staff		Specialization		Academic Rank	Faculty
Lecturer	Angel	Special	General		
	√	Refractories	Mechanic	Assistant Professor	A. Dr. Hassan Taleb Hashem
	√	Refractory Mechanics	Mechanical Engineering	Assistant Professor Doctor	A.M.D. / Mohamed Hassan Abboud
	√	Air conditioning and freezing machinery and equipment	Mechanical Engineering	Lecturer Doctor	Assoc. Prof. Dr. Ihab Omar Abbas
	√	Refractory Mechanics	Mechanical Engineering	Assistant Lecturer	Eng. Zainab Abdel Karim Salem
	√	Motion Systems Technologies Engineering	Mechanical Engineering	Lecturer Doctor	Eng. Ali Hamoudi Al-Wazir
√		Refractory Mechanics	Mechanical Engineering	Professor Doctor	Mr. Dr. Mohamed Wahab Kazim

√		Refrigeratio n & Air Conditionin g Engineering	Mechanical Engineering	Professor Doctor	Prof. Dr. / Uday Hussein Kazim
	√	Refractory Mechanics	Mechanical Engineering	Assistant Professor	Assoc. Prof. / Raouf Mohamed Radi
	√	Intelligent Manufactur ing Systems	Production & Metals	Professor Doctor	Prof. Dr. Hussein Salem Kitan
	√	Applied Mechanics	Mechanic	Assistant Lecturer	Eng. Eng . Ream Abdul Razzaq Salman
	√	Electromec hanical Systems Engineering	Electromec hanical Engineering	Assistant Lecturer	Eng. Mostafa Abbas Abdel Hussein
√		Applied Mechanics	Mechanical Engineering	Assistant Professor	a.m / Malik Nima Hawass
	√	Artificial Intelligence	Computer Science	Assistant Lecturer	Eng. Eng. Noor Al- Huda Salam Ahmed
√		Refractory Mechanics	Mechanical Engineering	Teacher	m / Ahmed Aliwi Samramad
√		Power Electricity and Mechanics	Electromec hanical Engineering	Assistant Lecturer	M.M. / Hussein Ali Jaafar
	√	Applied Mechanics	Mechanical Engineering	Assistant Lecturer	Eng. Eng. Noor Karim Jamag
√		Computers	Science	Professor Doctor	Prof. Dr. Salah Abdel Hadi
√		Refractories	Mechanic	Assistant Lecturer	Eng. Rasool Hamad Rashid

√		Refractories	Mechanic	Teacher	Eng. Ali Musallam Abdel Mohsen
√		Civil Code	Special Law	Assistant Lecturer	M.M. / Musa Ali Sakr
√		Refractories	Mechanic	Assistant Doctor	Eng. / Amin Sami Amin

12. Professional Development

Mentoring new faculty members

The Department of Refrigeration and Air Conditioning Technologies follows a structured orientation program for new, visiting, and prospective faculty members. The program begins with a formal reception and introduction to the department's policies, vision, and mission, followed by an overview of the department's administrative and academic structure. Introductory meetings are then held with faculty and administrative staff, and a guideline detailing academic and instructional procedures is provided. Lecture schedules and study plans are provided, as well as members are introduced to the department's academic facilities and technical workshops. The program concludes with the appointment of an academic advisor or coordinator to follow up on their adjustment and provide the necessary support during their first enrollment.

Faculty Professional Development

The plan is based on developing faculty competencies through periodic programs that include workshops and training courses on effective teaching strategies, active learning, and e-learning. The plan also enhances curriculum design skills and updating 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 monitored through periodic evaluations of faculty performance and constructive feedback that contributes to raising the academic and professional level within the institution.

13. Admission Criteria

- Graduate of Preparatory Studies/Scientific Branch
- Approval of the admission conditions for students according to the instructions issued by the Ministry of Higher Education and Scientific Research (Central Admission)
- Be medically fit for the specialty to apply for
- Admission Requirements for the Scientific Department.
- Student choices arranged according to preference
- Secondary School Acceptance Rate
- The capacity of the scientific department.

14. Key sources of information about the program

1. Accredited Resources in International Universities
2. Local trends
3. Market Needs
4. Studies and questionnaires.
5. Specialized seminars and workshops with beneficiaries

15. Program Development Plan

Objective

Improving the quality of the academic program to keep pace with international standards and the requirements of the labor market while achieving academic accreditation.

Key Steps

- Analysis of the current situation:
- Evaluate the study plan and available resources.
- Survey of students, alumni, and employers.

Development Plan:

- Updating the curriculum by adding new courses and developing practical skills.
- Organizing training courses for faculty members.
- Improving infrastructure (laboratories and technologies).

Implementation:

- Apply the developed plan gradually.
- Partnering with industrial institutions.
- Improving student evaluation mechanisms.

Evaluation and Follow-up:

- Conduct periodic performance reports.
- Continuous improvements based on feedback.

Time Frame

- Situation analysis: 3 months.
- Planning: 3 months.
- Implementation: 6-12 months.

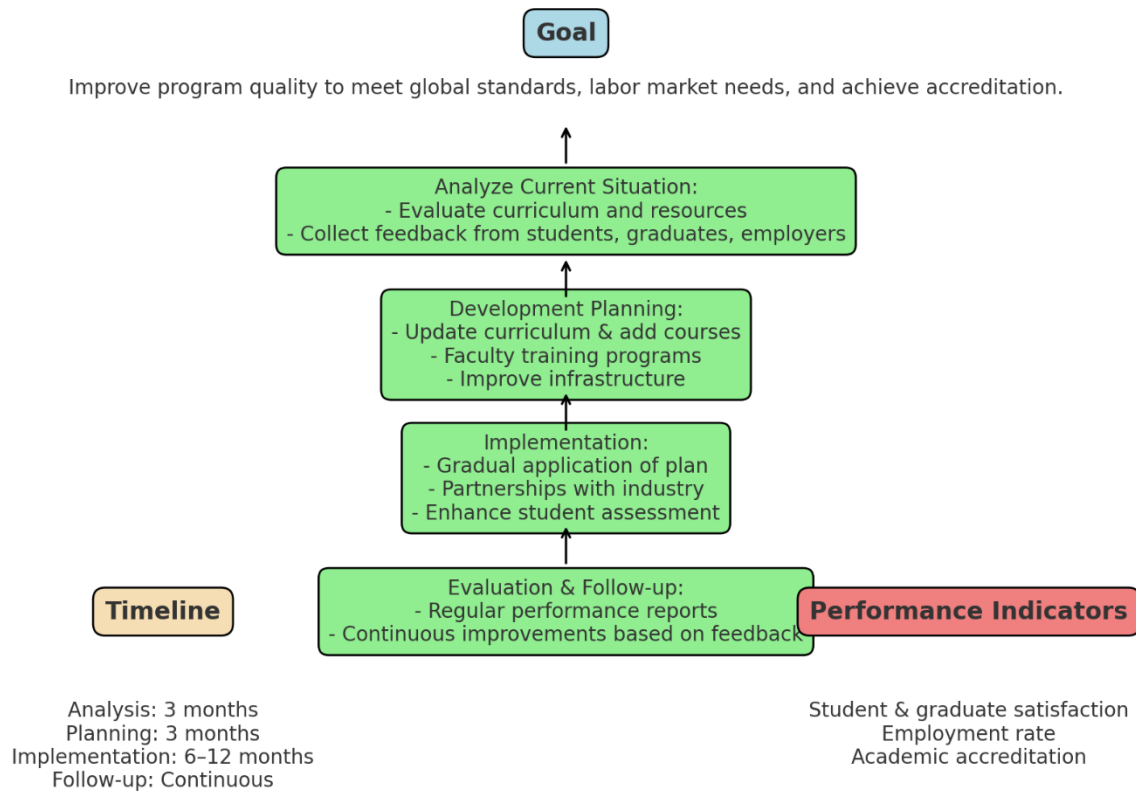
Follow-up: Continued.

Performance Indicators

- Student and graduate satisfaction.

- Employment Percentage.

Program Development Plan - Flow Structure



Curriculum Skills Plans															
Please indicate the boxes corresponding to the individual learning outcomes from the program being evaluated															
												Type Unity	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				
						✓	✓				✓	Education Assistant	Mathematics	ENG100	Stage The first First Semester
					✓		✓				✓	Essential	Engineering Drawing	ENG101	
							✓					Essential	Laboratories	ENG102	
			✓			✓	✓				✓	Essential	Materials Engineering	MPAC103	
											✓	Assistant	English 1	UoW1002	
							✓				✓	Essential Education	Electrical Engineering	MPAC107	Stage The first Second Semester
							✓			✓		Essential Education	Mechanics Engineering	MPAC108	
						✓	✓			✓	✓	Education Assistant	Thermodynamics 1	MPAC109	
	✓		✓									Education Assistant	Rights The human	UoW1006	Stage The first

				✓	✓						✓		Computer Principles	UoW1004	Second Semester
			✓									Essential Education	Arabic Language	UoW1001	
						✓		✓				Education Assistant	Advanced Mathematics	ENG200	Phase II Chapter Academic First
						✓			✓			Essential Education	Mechanical Drawing	MPAC201	
					✓			✓	✓			Essential Education	Fluid Mechanics	MPAC202	
						✓			✓	✓		Essential Education	Thermodynamics 2	MPAC203	
			✓				✓					Education Assistant	Baath Party Crimes	UoW1007	
		✓			✓	✓				✓		Essential Education	Refrigeration & Air Conditioning 1	MPAC205	Phase II Chapter Academic The second
						✓	✓			✓		Essential Education	Moa D Resistance	MPAC206	Phase II Chapter Academic The second

					✓				✓			Education Assistant	Engineering Analytics Numerical	ENG300	Stage The third Chapter Academic First
							✓			✓		Education Assistant	Computer Applications 2	UoW301	
					✓	✓				✓		Essential Education	Theory of Machines and Vibrations	MPAC302	
					✓	✓			✓			Essential Education	Heat Transfer	MPAC303	
				✓		✓		✓				Essential Education	Refrigeration & Air Conditioning 2	MPAC304	
				✓		✓				✓		Essential Education	Design Mechanic	MPAC305	Stage The third Chapter Academic The second
		✓					✓		✓			Essential Education	Refrigeration & Air Conditioning Maintenance	MPAC306	
				✓	✓				✓			Essential Education	Drawing of Refrigeration and Air Conditioning Systems	MPAC308	
						✓				✓		Essential Education	Electrical and Electronic Engineering	MPAC309	