*Republic of Iraq*
*Ministry of Higher Education & Scientific Research*
*Supervision and Scientific Evaluation Directorate*
*Quality Assurance and Academic Accreditation*
*International* Accreditation *Dept.*

# *Academic Program Specification Form for the Academic Year 2023-2024*

**2024-2023**

## Introduction:

The educational program is considered a coordinated and organized package of academic courses that includes procedures and experiences organized in the form of academic vocabulary, the main purpose of which is to build and refine the skills of graduates, making them qualified to meet the requirements of the labor market. It is reviewed and evaluated annually through internal or external audit procedures and programs such as the external examiner program.

The description of the academic program provides a summary of the main features of the program and its courses, indicating the skills that students are working to acquire based on the objectives of the academic program. The importance of this description is evident because it represents the cornerstone of obtaining program accreditation, and the teaching staff participates in writing it under the supervision of the scientific committees in the scientific departments.

This guide, in its second edition, includes a description of the academic program after updating the vocabulary and paragraphs of the previous guide considering the latest developments in the educational system in Iraq, which included a description of the academic program in its traditional form (annual, quarterly), in addition to adopting the description of the academic program circulated according to the book of the Department of Studies 3/2906. On 5/3/2023 about programs that adopt the Bologna Process as a basis for their work.

In this area, we can only emphasize the importance of writing descriptions of academic programs and courses to ensure the smooth conduct of the educational process.

### Concepts and terminology:

**Academic program description:** The academic program description provides a summary of its vision, mission, and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

**Course description:** It provides a necessary summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he has 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 an advanced, inspiring, motivating, realistic and applicable program. **Program message:** It briefly explains the objectives and activities necessary to achieve them and identifies the program's development paths and directions.

**Program Goals:** They are statements that describe what the academic program intends to achieve within a specific period and are measurable and observable. **Curriculum structure:** All courses/study subjects included in the academic program according to the

approved learning system (semester, annual, Bologna track), whether it is a requirement (ministry, university, college, or scientific department), along with the number of study units.

**Learning Outcomes:** A compatible set of knowledge, skills, and values that the student has acquired after successfully completing the academic program. The learning outcomes for each course must be determined in a way that achieves the program objectives.

**Teaching and learning strategies:** They are the strategies used by a faculty member to develop student teaching and learning, and they are plans that are followed to reach learning goals. That is, it describes all curricular and extracurricular activities to achieve the learning outcomes of the program.

# *Academic Program Specification Form*

**University:** Al-Kitab University
**College/Institute:** College of Engineering Technology
**Scientific Department:** Department of Refrigerating Engineering Technique.
**Academic or professional program:** Bachelor of Refrigerating Engineering Technique.

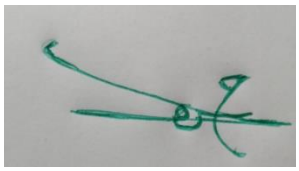
**Name of the final certificate:** Bachelor's degree in Refrigerating Engineering Technique.

**Academic system:** Yearly System

**Description preparation date:** 3/17/2024
**Date of filling the file:** 7/4/2024

**signature:**
**Name of scientific assistant:**
**the date :**

**The file has been checked from**
**Quality Assurance and University Performance**
**Name of the manager of the University Quality Assurance and Performance:**
**the date**
**the signature**



*Dean's Name:* Dr Hussien Ibzar
signature:

| 1. Program vision |
| --- |
| The program vision is to achieve excellent quality and leadership in; all academic and professional aspects of aeronautical, community service and research activities in the field of Refrigerating and Air-conditioning. |

| 2. Program message |
| --- |
| The program message is that the department's graduates should contributes to meet the country's needs in the field of Refrigerating and Air-conditioning. Engineering technology (academic and research) and all public and other private sectors. |

| 3. Program objectives |
| --- |
| The program objective is to prepare engineering cadres in specialty of Refrigerating and Air-conditioning technology engineering, who are responsible for studying the country's need for development and progress. To provide the labor market and industry sectors with professional |

| |
|---|
| engineers that can pursuing postgraduate studies to adapt to modern technical development in Refrigerating and Air-conditioning field. |

| 4. Programmatic accreditation |
|---|
| AICBA |

| 5. Other external influences |
|---|
| Laboratories, library |

| 6.Program structure | | | | |
|---|---|---|---|---|
| Program structure | Number of courses | Unit of study | percentage | Notes* |
| Organization requirements | 1 | 4 | %9 | Basic |
| College requirements | 6 | 21 | %11 | Basic |
| Department requirements | 23 | 111 | %60 | Basic |
| summer training | 2 | | | |
| Other | | | | |

* All of these values are identical to the Refrigerating and air-conditioning group, department of Mechanical Engineering/ College of Engineering Technique/ Central Technical University - Baghdad,

| | | | Hr | Credits |
|---|---|---|---|---|
| Second year | ANTE 223 | Fluid Mechanics I | 2 | 2 |
| | ANTE 215 | Manufacturing processes | 2 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| | MATH 252 | Mathematics II | 3 | | |
| | CREQ 246 | Mechanical Drawing | 2 | 2 | |
| | ANTE 213 | Mechanics II | 3 | | |
| | ANTE 214 | Strength of Materials | 2 | 2 | |
| | ANTE 231 | Theory of Flight | 2 | | |
| | ANTE 222 | Thermodynamics II | 2 | 2 | |
| | CREQ 245 | Programming II | 1 | 2 | |
| | | | | | |
| Third Year | ANTE 324 | Aerodynamics | 2 | 2 | |
| | ANTE 332 | Aircraft Electricity and Instruments | 2 | 2 | |
| | ANTE 316 | Mechanical Engineering Design I | 2 | 2 | |
| | CREQ 347 | Engineering and Numerical Analysis | 2 | | |
| | ANTE 325 | Heat Transfer | 2 | 2 | |
| | CREQ348 | Industrial Engineering | 2 | | |
| | ANTE 317 | Theory of Machines | 2 | 2 | |
| | ANTE326 | Gas dynamic | 2 | 1 | |
| | ANTE 333 | Aircraft Engines | 2 | 2 | |
| | | | | | |

## 7. Learning Outcomes, Teaching, Learning and Assessment Methods

### A. Learning outcome

a) Knowledge and Understanding outcome: People graduated from the program have the following skills in Refrigerating and Air-conditioning Engineering;

a-1- A high level of understanding and knowledge in building, analyzing and developing ideas.

a-2- They are able to analyze engineering and scientific problems by applying suitable laws in science, mathematics and engineering and to abide by the instructions for any effectiveness in the

organizational and administrative framework in the implementation of a project or facing an engineering problem, solving and evaluating it and submitting a proposal or a plan or reformulating it, translating or interpreting it.

a-3- The student should be able to speak and write in an effective scientific and engineering style in Arabic and English.

a-4- Motivating our students to actively participate in the renaissance and progress of society through holding seminars, conferences, continuing education, and providing academic consultations in the fields of Refrigerating and Air-conditioning Engineering

a-5- The student should be able to do scientific and applied research in Refrigerating and Air-conditioning fields for the purpose of solving industrial problems.

b) Subject-specific skills.

b-1 - The ability to use the engineering techniques.

b-2 - Analyzing technical problems and providing a suitable solution.

b-3 - Scientific investigation and evaluation.

c) Thinking skill

c1 - Using brainstorming to bring out the creative ideas of some gifted students.

c2 - Developing scientific research skills using the internet to broaden the horizon of knowledge.

c3 - Encouraging the development of engineering thinking for students in memorization and guessing and motivating it towards critical thinking before remembering at certain stages.

c4 - Presenting the engineering problem or design and asking to think about all possible solutions and developments.

d) other skills

d1- Connection, communication, and information technology skill.

d2 – Co-operation and teamwork skill.

d3 – English and Arabic Language skill (include reading, writing, and listening) which can help in the art of listing, persuasion and dialogue.

d4 – Acquiring leadership quality, memory power, fast intuitive and ability to predict and extrapolate.

## B. Teaching and Learning Methods

There are many teaching and learning methods used in the Department of Refrigerating and Air-conditioning Engineering Technique. The learning is done through practical applications, and theoretical lectures using traditional board teaching, PPT presentation, discussion groups, and seminars, and student is always asked to investigate topics and problems through the internet. The method of Bologna System will apply starting this academic year.

## C. Assessment methods

1. Seminars.
2. Academic debate, oral dialogue, semester and final theoretical and practical written examinations.
3. Writing and submitting reports and taking notes on the technical expertise gained in the field visits.

The department has relied on clear and high-quality assessment methods and tools in order to maintain the good quality and high scientific reputation of the graduation. The quality of the graduate is very important since it constitutes the final product of the educational process. The most important methods of assessment used in the department are:

a) Objective tests: The goal of the test is to measure the ability of students to recognize and assimilate engineering facts. This can be done using the followings:

a-1- True and False Questions.
a-2- Multiple choice questions.
a-3- Interview questions (blank questions).
a-4- Completion questions.

b) Engineering tests: the goal of the test is to measure the ability of student to understand scientific subjects and engineering principles, recall, relate and interpret as well as the

ability to analyse data and use it to diagnose engineering problems. This can be done using the followings:

b-1- Connectivity Test / Open Questions.

b-2- Questions that have a definite answer.

c) Other tests:

c-1- Seminars.

c-2- Academic debate, oral dialogue, semester and final theoretical and practical written examinations.

c-3- Writing reports

c-4- Field visits.

## 8. The teaching staff

### Teaching staff

| Academic rank | specialty | | Special requirements/ skills (if applicable) | | | | |
|---|---|---|---|---|---|---|---|
| | general | Exact | | | employee | lecturer | |
| Prof. Mohammed Jasim Mohammed | Electronic Engineering | Computer and information systems engineering | | | √ | | |
| Prof.Hassan Abdulwahab | Mechanical Engineering | combustion | | | √ | | |
| Miss. Aisha Tareq Taher | Mechanical Engineering | Renewable energy | | | √ | | |
| Miss. Ruaa Kareem Azzah | Fuel and energy technology engineering | Refractory Technology Engineering | | | √ | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Dr. Ali Abdulraheem | Computer Science | Information security | | | √ | | |
| Mr. Ali Abdullah | Computer Science | Information security | | | √ | | |
| Dr.Khalid khalis | Computer Science | Software Engineering | | | | √ | |

## 9. Professional development

### Orienting new faculty members

Training and development of professors: By providing training programs and workshops for faculty members to develop their educational skills and update their academic knowledge in the field of Refrigeration and Air-conditioning Engineering which enhances the quality of teaching and learning in the specialty.

### Professional development for faculty members

Professional development for faculty members is considered important to enhance their competence and improve their performance in the field of Refrigerating and Air-conditioning Engineering. Faculty can develop their skills by attending workshops and training courses, and participating in educational seminars and conferences. They can also exchange knowledge and experiences with colleagues in the field of Refrigerating and Air-conditioning Engineering, and use technology to improve the teaching process. This helps them innovate and improve the quality of education they provide to students.

## 10. Acceptance criterion

Students in the department Refrigerating and Air-conditioning are accepted from graduates of preparatory studies in its scientific stream, with a grade of 60 %, and the graduation requirements are:

- Performing 136 course hours over the years of study.
- Passing the prescribed exams with a grade of 50 % or more
- Performing summer training before the final stage.
- Submitting graduation research in one of the specialty topics.

## 11. The most important sources of information about the program

Iraqi government universities and international universities related to the specialty.

## 12. Program development plan

A. Analyze the current situation: This can be done by evaluating the current curriculum and analyzing its strengths and weaknesses and searching for opportunities for improvement and identify areas that need development.
B. Setting goals: Setting the main goals for developing the academic curriculum is considered one of the most important steps in developing any program, as the goals can include increasing educational quality, improving the student experience and enhancing academic and personal developments.
C. Continuous evaluation and review: By conducting periodic evaluation and review of the curriculum and teaching methods and communicating with students and professors to collect observations and comments. Use this feedback to improve and enhance your academic curriculum.

## 13. Curriculum Skills Map

please tick in the relevant boxes where individual Program Learning Outcomes are being assessed

| Thinking Skills | | | | Subject-specific skills | | Knowledge and understanding | | | | Core / Option | Course Title | Course Code | **Year/ Level** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C4 | C3 | C2 | C1 | B2 | B1 | A4 | A3 | A2 | A1 | | | | |
| √ | √ | √ | √ | √ | √ | | √ | √ | √ | Specialist | Fluid Mechanics I | ANTE 223 | **Second Year** |
| √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | Specialist | Manufacturing processes | ANTE 215 | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | Auxiliary | Mathematics II | MATH 252 | |
| √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | Auxiliary | Mechanical Drawing | CREQ 246 | |
| | √ | √ | √ | √ | √ | √ | √ | √ | √ | Specialist | Mechanics II | ANTE 213 | |
| | √ | √ | √ | √ | √ | √ | √ | √ | √ | Specialist | Strength of Materials | ANTE 214 | |
| √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | Specialist | Theory of Flight | ANTE 231 | |
| | √ | √ | √ | √ | √ | √ | √ | √ | √ | Specialist | Thermodynamics II | ANTE 222 | |
| √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | Auxiliary | Programming II | CREQ 245 | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | |
| | √ | √ | √ | √ | √ | √ | √ | √ | √ | Specialist | Aerodynamics | ANTE 324 | **Third year** |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | √ | √ | √ | √ | √ | √ | √ | √ | √ | Specialist | Mechanical Engineering Design I | ANTE 316 | |
| | √ | √ | √ | √ | √ | √ | √ | √ | √ | Specialist | **Mechanical Engineering Design I** | ANTE 316 | |
| | √ | √ | √ | √ | √ | √ | √ | √ | √ | Specialist | Mechanical Engineering Design I | ANTE 316 | |
| | | √ | | √ | √ | √ | √ | √ | √ | Auxiliary | Engineering and Numerical Analysis | CREQ 347 | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| √ | √ | √ | √ | √ | √ | √ | | | √ | √ | Specialist | Heat Transfer | ANTE 325 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | Auxiliary | Industrial Engineering | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | CREQ 348 |
| √ √ | √ | √ | √ | √ | √ | | √ | √ | √ | Specialist | Theory of Machines | ANTE 317 |
| | | | | | | | | | | | | |
| | √ | √ | √ | √ | √ | √ | √ | √ | √ | Specialist | Aircraft Engines | ANTE 333 |
| | √ | √ | √ | √ | √ | √ | √ | √ | √ | Specialist | Gas dynamic | ANTE 326 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

**•Please check the boxes corresponding to the individual learning outcomes from the program subject to evaluation**