

Ministry of Higher Education and Scientific Research

Scientific supervision and evaluation device



Department of Quality Assurance and Academic Accreditation

**Academic program description form for colleges and  
institutes for the academic year 2023-2024**

University: Northern Technical University

College/Institute: Hawija Technical Institute

Scientific Department: Department of Electrical Technologies

Signature:  Signature:  Department Head:  
Scientific Assistant Dean

Parween Raheem Kareem Dr. Suhail Najm Shehab 4/9/2023 4/9/2023

Check the file before

Quality Assurance and University Performance Division:

Khalil Ahmed Sakran

Signature: 



The Dean

Professor: Omar Khalil Ahmed

Description of the academic program

This academic program description provides a summary of the most important characteristics of the program and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the opportunities available. It is accompanied by a description of each course within the program

1. Educational institution	Hawija Technical Institute
2. Scientific Department /	Electrical Technologies
3. Name of the academic or professional program	power
4. Name of the final certificate:	Diploma
5. Academic system:	yearly/courses/other courses
6. Accreditation Program	ABET Academic Accreditation Program for Engineering and Technology
7. Other external influences:	Keeping pace with the labor market in updating curricula to suit rapid technological development
8. Date the description was prepared	9/4/2023

### **9. Objectives of the academic program**

The specialization aims to graduate technical personnel qualified to carry out the work of operating and maintaining electrical units in electrical power generation and transmission stations and maintaining protection and control devices for the electrical energy system

### **10. Required program outcomes and teaching, learning and evaluation**

<b>methods</b>
<b>A- Cognitive objectives:</b>
<ol style="list-style-type: none"> <li>1. Study and analysis of electrical circuits.</li> <li>2. Identify the electrical power system.</li> <li>3. Identify electrical machines, their types, and methods of controlling their operation.</li> <li>4. Study the foundations of electrical installation for homes and factories.</li> <li>5. Programmed intelligent control and how to monitor it.</li> </ol>
<b>B - Skills objectives of the program:</b>
<p>1-Operating and maintaining electrical units for electrical power generation plants. 2. Operating and maintaining electrical equipment for transmission and distribution. 3. Maintenance of protection and control devices for the electrical power system.</p>
<b>Teaching and learning methods</b>
<p>Theoretical explanation of the subject, the use of a data viewer to illustrate the practical aspect, and playing the educational video for students, as well as the weekly reports assigned to the student for each experiment, along with scientific trips to electrical power stations and various state laboratories.</p>
<b>Evaluation methods</b>
<ol style="list-style-type: none"> <li>1-Semester and final exams</li> <li>2- Quick tests Quizze</li> <li>3- Writing scientific reports</li> <li>4- Continuous evaluation</li> <li>5- Scientific discussion</li> <li>6- Homework</li> <li>7- Committees for discussing graduation projects for final stage students</li> </ol>
<b>C- Emotional and value-based goals:</b>
<ol style="list-style-type: none"> <li>1- Encouraging the development of students' professional and technical thinking</li> <li>2- Working to develop a distinct personality for the student by developing cultural, social and technical awareness, which qualifies him after graduation to contribute effectively to serving his community.</li> <li>3- The ability to make decisions by identifying the available information and arranging it to identify the technical problem and find solutions.</li> <li>4- The ability to understand scientific theories and the foundations based on</li> </ol>

them in a way that helps develop the student's scientific thinking.

### **Teaching and learning methods**

1. Theoretical lectures
2. -Direct and open scientific discussion lectures for teachers with students.
3. Practical application of lectures in laboratories related to the subject.
4. Student seminars address specific technical problems.
5. Analysis of technical problems by the teaching and technical staff with the participation of students.

### **Evaluation methods**

1. Student interaction with the lecture and class discussions
2. Scientific discussion - continuous evaluation of the student
3. The student's daily attendance at theoretical lectures, their practical applications, and discussion seminars.
4. Tests that determine the student's ability to interpret the available data, analyze the technical problem and solve it.

### **D - General and qualifying transferable skills (other skills related to employability and personal development).**

1. Basic skills in maintaining and repairing electrical devices and analyzing electrical circuits.
2. -Teaching the student how to develop and develop creative and innovative thinking skills in the field of electrical technologies.
3. -Enabling students to pass professional tests organized by employers.
- 5- Enabling students to continue self-development after graduation.

### **Teaching and learning methods**

<p>1- Curricula                  2- Class activities, class and home activities                  3- . Graduation projects                  4- Questionnaires to find out students' opinions and desires for various activities                  5- Using the Internet.</p>
<b>Evaluation methods</b>
<p>6- Practical tests                  7- Theoretical tests                  8- Reports                  9- Homework</p>

### 11. Program structure

The first level					
	Course Name	theoretical	practical	number of units	code
University compulsory	Rights and Human Democracy	2	0	2	NTU100
	English Language	2	0	2	NTU101
	principles1 Computer	1	2	3	NTU102
	principles2 Computer	1	2	3	NTU103
	Arabic Language	2	0	2	NTU104
Optional university	Sport	1	1	2	NTU105
	Language Franch	2	0	2	NTU106
Compulsory institute	1 Mathematic	2	0	2	TIHA100
	2 Mathematic	2	0	2	TIHA101
	Workshop Mechanical	0	3	3	TIHA102

	Vocational Safety	2	0	2	TIHA103
Optional university	Vocational Safety	2	0	2	TIHA103
department Compulsory	Electrical Cicuit1	2	2	4	ELTP100
	Cicuit2 Electrical	2	2	4	ELTP101
	1 Electronic	2	2	4	ELTP102
	2 Electronic	2	2	4	ELTP103
	Installation Electrical	2	2	4	ELTP104

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	Electronic Digital	2	2	4	ELTP105
	Drawing Engineering	0	3	3	ELTP106
	Workshop Electrical	0	3	3	ELTP107
Optional Deparment	Energy Renewable	2	0	2	ELTP108
	Circuits Electric Simulation	1	2	3	ELTP109
	<b>Total</b>	<b>32</b>	<b>28</b>	<b>60</b>	
The second level					
	Course Name	theoretical	practical	number of units	code
University compulsory	English Language	2	0	2	NTU200
	Professional Ethics	2	0	2	NTU201
department Compulsory	D.C Machines	2	3	5	ELTP204
	Electrical	2	2	4	ELTP20

	networks 1				5
	Power electronics 1	2	3	5	ELTP20 6
	Maintenance 1 Workshop	0	3	3	ELTP20 7
	Industrial Installation1	2	2	4	ELTP20 8
	Electrical Drawing	0	3	3	ELTP20 9
	Project1	0	2	2	ELTP21 0
	A.C Machines	2	3	5	ELTP21 1
	Electrical networks 2	2	2	4	ELTP21 2

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	Power electronics 2	2	3	5	ELTP21 3
	Maintenance Workshop 2	0	3	3	ELTP21 4
	Electrical Installation 2	2	2	4	ELTP21 5
	Programmable Logic Controller )PLC(	1	2	3	ELTP21 6
	Project 2	0	2	2	ETP217
Optional Deparment	Protection system	1	1	2	ETP218
	Microcontroller	1	2	3	ETP219
<b>Total</b>		<b>23</b>	<b>38</b>	<b>61</b>	

## 12. Planning for personal development

The Department of Electrical Technologies seeks to improve the scientific and administrative process and overcome all the difficulties and obstacles that hinder the educational program by developing human resources to develop the personality by following the following procedures:

- 1- Continuous improvement and development of faculty members and training through training programs and workshops inside and outside the department
- 2- Urging and encouraging faculty members to obtain the highest academic and administrative ranks.
- 3- Increasing extracurricular activities such as holding and participating in conferences, scientific seminars, and sports festivals.

## 13. Admission standard (setting regulations related to admission to the college or institute

- 1- Approval of the average on the basis of central acceptance from the Ministry of Higher Education and Scientific Research.
- 2- The type of branch from which the student graduated, which includes:  
A Scientific branch B- Professional (industrial) branch.
- 3- Suitability of the student for academic study after the medical examination of the students.

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

1. Methodological books prescribed by the Northern Technical University.
2. Resources available in the Technical Institute's library.
3. Resources available on the Internet

الصفحة 7

مخطط مهارات المنهج

Please check the boxes corresponding to the individual learning outcomes from the p



Learning outcomes required from the programme																Mandatory/ optional
general and qualifications skills				emotional and value goals				Skill goals				Cognitive goals				
D1	D2	D3	D4	C1	C2	C3	C4	B1	B2	B3	B4	A1	A2	A3	A4	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Mandatory
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Mandatory
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Mandatory
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Mandatory

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				emotional and value goals				Skill goals				Cognitive goals				Mandatory Optional
D1	D2	D3	D4	C1	C2	C3	C4	B1	B2	B3	B4	A1	A2	A3	A4	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Mandatory
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Mandatory

الصفحة 9

### Course description

Course description

This course description provides a summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the learning opportunities available. It must be linked to the program description.

1. Educational institution	Hawija Technical Institute
2. Scientific department/center	Electrical technologies
3. Course name/code	mathmatics
4. Available forms of attendance	weekly
5. Semester/year	Courses
6. Number of study hours (total)	4*15=60
7. The date this description was prepared	4 /89 /2023
8. Course objectives	<p>1- Understanding simple mathematical laws and equations</p> <p>2- Understanding the main concepts and knowing the rules and laws of mathematics and their application in electrical technologies.</p> <p>3- The mathematics topic aims to clarify the practical and</p> <p>.</p>

1. 1. Course outcomes and teaching, learning and evaluation methods

### A- Cognitive objectives

1. Understands the basic principles of linear algebra and its applications
2. Understands the algebraic and transcendental function, the domain and the corresponding domain of algebraic and trigonometric functions, and the objectives of algebraic and trigonometric functions.
3. Understands the rules and applications of differentiation.
4. Understands the rules of function integration for algebraic functions, transcendental functions, and the relationship between differentiation and integration.
5. Understands numerical methods of integration and their applications
6. Understands ordinary differential equations and methods for finding the general solution and the special solution with applications.

### **B. The skills objectives of the course**

- 1 - Familiarity with mathematical relationships that represent types of algebraic functions and their graphing.
- 2 - Familiarity with the laws of finding the derivative using the definition and returning it to the basic function under the influence of the properties of integration.
- 3-Using mathematical concepts and rules in the field of electrical power specialization

### **Teaching and learning methods**

- 1- Explanations and clarification.
- 2- Scientific lessons.
- 3- Reports.
- 4- Student graduation projects

### **Evaluation methods**

- 1- Theoretical tests
- 2- Practical tests
- 3- Reports

### **C- Emotional and value goals**

- 1- The student participates in class activities and submits assignments on time.
- 2- Adherence to occupational safety rules while working in laboratories.
- 3- Attention control and attention test (selective attention)

**Teaching and learning methods**

1. Listen and pay attention to the professor's explanation.
2. Knowing the role of science and scientists in life.
3. The student's interest in the calm and cleanliness of the classroom.

Evaluation methods

Oral exams, written exams, semester exams, final exams, daily evaluation, practical tests in laboratories, and weekly reports.