Ministry of Higher Education and Scientific Research

Supervisory and Scientific Evaluation Authority

Department of Quality Assurance and Academic Accreditation

Accreditation Division

Guide for Describing Academic Programs and Courses

2025

Introduction :The academic program is a coordinated and organized package of courses that includes procedures and experiences structured into study units. Its primary purpose is to build and refine graduates' skills, making them qualified to meet labor market demands. The program is reviewed and evaluated annually through internal or external audit procedures, such as the External Examiner Program.

The academic program description provides a concise summary of the program's key features and its courses, outlining the skills students are expected to acquire based on the program's academic objectives. This description is crucial as it forms the foundation for obtaining program accreditation. It is collaboratively written by teaching staff under the supervision of scientific committees in academic departments.

This second edition of the guide includes updates to the previous version's content, reflecting recent developments in Iraq's educational system. It describes academic programs in both traditional formats (annual, semester) and the Bologna Track, as approved by the Department of Studies under reference number T.M3/2906 dated 3/5/2023.

In this context, we emphasize the importance of writing academic program and course descriptions to ensure the smooth operation of the educational process.

Concepts and Terminology:

Academic Program Description: A brief summary of the program's vision, mission, objectives, and targeted learning outcomes based on specific learning strategies.

Course Description: A concise overview of the course's key characteristics and the expected learning outcomes, demonstrating whether students have maximized their learning opportunities. Derived from the program description.

Program Vision: An aspirational image of the academic program's future, aiming to be advanced, inspiring, motivational, realistic, and implementable.

Program Mission: A summary of the objectives and activities necessary to achieve them, outlining the program's development paths and directions.

Program Objectives: Measurable and observable statements describing what the academic program intends to achieve within a specified timeframe.

Curriculum Structure: All courses/subjects included in the academic program under the adopted learning system (semester, annual, Bologna Track), categorized as ministry, university, college, or departmental requirements, along with the number of credit units.

Learning Outcomes: A coherent set of knowledge, skills, and values students acquire upon successfully completing the academic program. Each course's learning outcomes must align with the program's objectives.

Teaching and Learning Strategies: The strategies faculty members use to develop student learning, encompassing all classroom and extracurricular activities to achieve the program's learning outcomes.

Academic Program Description Template

University Name: Northern Technical University

College/Institute: Technical College of Hawija

Academic Department: Medical Device Technologies

Academic or Professional Program Name: Diploma in Medical Device Technologies

Final Degree Awarded: Diploma in Medical Device Technologies

Study System: Course-based

Description Preparation Date: 11/6/2025

File Completion Date:11/6/2025

Signature: 

Head of Department Name: Munif Abudallah Ahmed

Date:11/6/2025

Signature: 

Scientific Assistant Name: Mohammed Jayad Luji

Date:11/6/2025

Reviewed by:

Quality Assurance and University Performance Unit

Unit Director Name: Ahmed Abed Khalaf

Date: 11/6/2025

Approved by the Dean

Academic Program Description

This academic program description provides a concise summary of the main features of the program and the learning outcomes expected of the student, 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	Al-Huwayjah Technical Institute
2. Scientific / Department Center	Medical Equipment Techniques
3. or professional program	Medical Equipment Techniques
4. Final Certificate Name	diploma
5. Academic system : Annual/Courses/Other	Decisions
6. Accredited Certification Program	Academic Accreditation Program for ABET Engineering and Technology
7. Other external influences	Keeping pace with the labor market by updating curricula to suit rapid technological development
8. Description preparation date	2024/14/10
9. Academic Program Objectives	
The major aims to graduate qualified technical personnel to operate and maintain medical devices.	

Required program outcomes , teaching, learning and assessment methods.10
:Cognitive objectives .Study and operation of electronic and mechanical medical devices .1 Electronic and mechanical medical devices Operation Identify parts .2 .and maintenance methods Ability to detect and repair faults in electrical and mechanical .3 . components .Training a technical staff capable of maintaining medical devices .4 Learn about different measuring devices and sensors and how to use .5 .and maintain them
:B - Program specific skill objectives . Installation and operation of medical equipment parts .1 . Connecting medical devices and their accessories .2 . Medical equipment maintenance .3
Teaching and learning methods
Theoretical explanation of the subject and the use of modern teaching methods such as data shows, educational video presentations, and scientific trips to control and follow-up units of hospitals and industrial laboratories.
Evaluation methods
.Daily, semester and final tests .1 .Practical tests in laboratories .2 .Weekly reports .3 .Oral examinations and student participation in lectures .4

:C- Emotional and value goals

1. Student participation in classroom activities and submitting 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. Encourage students to listen, pay attention to the lessons and participate actively during the lecture.
2. Knowing the role of science and scientists in life to give motivation to students
3. The student's interest in the quiet and cleanliness of the classroom.
4. Increase the spirit of competition and enthusiasm among students.

Evaluation methods

1- Note
2- The interview
3- The student's cumulative record through educational committees present in the department.

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

1- Using modern medical devices to conduct laboratory experiments.
2- Using computer programs to operate medical devices properly.

Teaching and learning methods

1- Explanation and clarification
2- Practical lessons
3- Reports
4- Graduation projects

Evaluation methods

1. Practical tests
2. Theoretical tests
3. Reports
4. Homework

Program structure .11

Curriculum plans for the course system

Northern Technical University / Al-Huwayjah Technical Institute / Department of Medical Equipment Maintenance Technologies

Level 1							
The symbol	The pavement if any	Number of units	Watches		Course name		Requirement Type
			A	N	In English	In Arabic	
NTU100		2	0	2	Human Rights and Democracy	Human rights and democracy	University requirements units + (8) (10) compulsory units + (2) elective units
NTU101		2	0	2	English Language	English language	
NTU102		2	1	1	Principles of Computer	Computer	
NTU104		2	0	2	Arabic Language	Arabic	
NTU105		2	1	1	Sport	Sports (optional)	
TIHW100		2	0	2	Maths 1	Mathematics 1	Institute Requirements Compulsory (7) Unit
TIHW101		3	3	0	Mechanical Workshop	Mechanical Factor	
TIHW102	TIMO100	2	0	2	Maths 2	Mathematics 2	
MDT100		4	2	2	DC Electrical Circuits	DC circuits	Departmental Specialization Requirements compulsory (34) units
MDT101		4	2	2	Electronic Principles	Principles of Electronics	
MDT102		4	2	2	Digital Circuit Principle	Digital Circuit Principles	
MDT103		2	0	2	Physiology	Physiology	
MDT104		2	2	0	Electrical Workshop	Electrical workshop	
MDT105		2	2	0	Electrical Drawing	electrical drawing	
MDT106		2	2	0	Electrionics Workshop	Electronic workshop	
MDT107		4	2	2	AC Electrical Ciruits	AC circuits	
MDTI108		4	2	2	Electroic	Electronic	
MDT109		4	2	2	Digital Circuit	digital circuits	
MDT110		2	2	0	Engineering Drawing	Engineering drawing	
		51	25	26	the total		

Curriculum plans for the course system

Northern Technical University / Al-Huwayjah Technical Institute / Department of Medical Equipment Maintenance Technologies

2 Level							
The symbol	The pavement if any	Number of units	Watches		Course name		Requirement Type
			A	N	In English	In Arabic	
NTU201		2	0	2	Professional Ethics	Professional ethics	University Requirements (10) Units
NTU101		2	0	2	English Language	English language	
NTU102		2	1	1	Principles of Computer	Computer	
NTU104		2	0	2	Arabic Language	Arabic	
6NTU10		2	0	2		Baath Party Crimes	
MDTI200		4	2	2	Measurement Devices	Measuring devices	Departmental Specialization Requirements (34) compulsory units
MDTI201		4	2	2	Electronic Circuits (1)	Electronic circuits1	
MDTI202		4	2	2	Microcomputer (1)	Microcomputers 1	
MDTI203		4	2	2	Electronic Medical Instrument (1)	Electronic medical devices 1	
MDTI204		2	2	0	Medical Instrument Maintenance Workshop(1)	Medical Equipment Maintenance Workshop 1	
MDTI205		2	2	0	Project(1)	Project 1	
MDTI206		4	2	2	Electro-Mechanical Medical Instrument	Electromechanical medical devices	
MDTI207		4	2	2	Electronic Circuits (2)	Electronic circuits 2	
MDTI208		4	2	2	Microcomputer (2)	Microcomputers 2	
MDTI209		4	2	2	Electronic Medical Instrument (2)	Electronic 2 medical devices	
MDTI210		2	2	0	Medical Instrument Maintenance Workshop(2)	Medical Equipment Maintenance 2 Workshop	
MDTI211		2	2	0	Project(2)	2 Project	
MDTI212		4	2	2	Control	control	
MDTI213		3	2	1	Programmable Logical Controller(PLC)	Programmable Logic Controller	
MDTI214		3	2	1	Renewable energy systems	Renewable Energy Systems (Optional)	
		60	31	29	the total		

Planning for personal development.12
. Preparing educational bags .1 . Teamwork of students to build and maintain laboratory equipment .2 Asking students to submit reports on recent scientific developments that are .3 concerned with knowing the recent development in the field of specialization. .Participate in training courses to develop skills .4
Admission Criteria (Setting regulations for admission to a college or.13 (institute
The average is approved based on central acceptance from the Ministry of **–1** .Higher Education and Scientific Research -The type of branch from which the student graduated, including: A –2 .Scientific branch B- Professional (industrial) branch . Student suitability for academic study after medical examination of students -3
The most important sources of information about the program.14
.Textbooks prescribed by the Northern Technical University .1 .Resources available in the Technical Institute Library .2 Resources available on the Internet .3

Curriculum Skills Chart

.Please tick the boxes corresponding to the individual learning outcomes of the programme being assessed

Required learning outcomes of the program																		
transferable skills Other skills related to) employability and personal (development				Emotional and value goals				Program specific skill objectives				Cognitive objectives				essential Or optional	Course name	Course code	Year/Level
D4	D3	D2	D1	A4	A3	A2	A1	B4	B3	B2	B 1	A4	A 3	A2	A 1				
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	Human rights and democracy	NTU100	**the first**
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	English 1	NTU101	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	Computer Principles 1	NTU102	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	Computer Principles 2	NTU103	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	Arabic	NTU104	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	Sports (optional)	NTU105	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	optional	Mathematics 1	TIHW100	

✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	optional	Mechanical laboratories	TIHW101	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	Mathematics 2	TIHW102	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	Electronics Basics	**MDMT101**	**the first**
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	DC circuits	**MDMT100**	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	Digital Circuits Basics	**MDMT102**	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	Electronic workshop	**MDMT106**	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	Engineering drawing	**MDMT110**	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	Electronics	**MDMTI108**	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	AC circuits	**MDMT107**	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	Digital circuits	**MDMT109**	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	electrical drawing	**MDMT105**	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**essential**	Electrical workshop	**MDMT104**	

Curriculum Skills Chart																		
.Please tick the boxes corresponding to the individual learning outcomes of the programme being assessed																		
Required learning outcomes of the program																		
transferable skills Other skills related to) employability and (personal development				Emotional and value goals				Program specific skill objectives				Cognitive objectives				essential Or optional	Course name	Course code	Year/Level
D4	D3	D2	D1	A4	A3	A2	A1	B4	B3	B2	B1	A4	A3	A2	A1				
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	English 2	NTU200	the second
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Professional ethics	NTU201	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Measuring devices	MDMT200	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Electronic circuits 1	MDMT 201	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Microcomputers 1	MDMT 202	

✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Electronic medical devices 1	MDMT 203	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Medical Equipment Maintenance Workshop 1	MDMT 204	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Project 1	MDMT 205	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Electromechanical medical devices	MDMT 206	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Electronic circuits 2	MDMT 207	the second
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Microcomputers 2	MDMT 208	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Electronic medical devices 2	MDMT 209	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		Medical Equipment Maintenance Workshop 2	MDMT 210	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Project 2	MDMT 211	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Control	MDMT 212	

✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Programmable Logic Controller	MDMT 213	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	essential	Renewable Energy Systems (Optional)	MDMT I213	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	optional	Calculator apps (optional)	MDMT 215	

Course Description Form

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the programme description.

Al-Huwayjah Technical Institute	**1. Educational institution**
Medical Equipment Techniques	**2. Scientific / Department Center**
Digital Circuit Principles	**3. Course Name/Code**
weekly	**4. Available attendance forms**
Decisions	**5. Chapter/Year**
60=15*4	**6. Number of study hours (total)**
2025/4/16	**7. Date this description was prepared**
	8. Course objectives
Teaching students the principles of digital logic circuits in electronic computers. Building simple digital circuits using truth tables. Teaching students about inequality circuits, counter circuits, adder circuits, and registers.	

Course outcomes, teaching, learning and assessment methods .9
A- Cognitive objectives 1. binary, octal, decimal and hexadecimal number systems and convert between them . 2. Learn about logic gates (types, working principles, truth tables and logical symbols (. 3. Learn how to connect and form logic circuits. 4. Learn the rules of Boolean algebra and De Morgan's rules and how to simplify and deal with them. Learn about Karnaugh maps with two, three and four variables and methods for simplifying rational equations. 5. Using Karnaugh maps 6. Logic Circuit Applications (Adder) Half, complete, half and complete ,subtractor, comparisons Encoders and oscillators 7. (SR - Flip flop) ,(JK) ,TD Learn about series circuits types 8. Learn about the types of registers and how to design them, how to enter and exit data from them, and how to move registers to the right and to the left. 9. Learn about the types of counters, synchronous and asynchronous, and how to design them.
B. Course specific skill objectives 1. Gain the skill of designing and connecting comparator circuits and conversion circuits for decimal and binary systems. 2. Constructing circles (addr , subtractor, half and complete) for numbers up to four ranks 3. Building circles of probability Types and square wave generation medicine 4. Building positive ascending and descending counter circuits Digital to analog conversion circuits and vice versa
Teaching and learning methods
1- Explanations and clarifications. 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- Student participation in class activities and submission of 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 teacher's explanation. 2. Knowing the role of science and scientists in life. 3. The student's interest in the quiet and cleanliness of the classroom.
Evaluation methods
Oral tests, written tests, semester exams, final exams, daily assessment, practical tests in laboratories, and weekly reports .

Course structure.10					
Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Watches	The week
Daily evaluation	Explanation and clarification	Number systems and encryption	Number recognition and encryption	4	1
Daily evaluation	Explanation and clarification	logic gates	Introduction to Computer Parts and ASCII Encoding	4	2
Daily evaluation	Explanation and clarification	bologna algebra	bologna algebra and logic	12	5-3
Daily evaluation	Explanation and clarification	Logical Functions Applications	Simplifying Boolean Functions	12	8-6
Daily evaluation	Explanation and clarification	Decimal Host Value Comparator Code Analyzers	Coalition logic	12	11 -9
Daily evaluation	Explanation and clarification	Karnaugh maps	Understanding Karnaugh maps with two and three variables	8	13 -12
Daily evaluation	Explanation and clarification	Slides and bouncers	sequential logic	8	15 -14

Infrastructure.11

1- Required Textbooks	A textbook on digital circuits and any new lectures prepared by the instructor on the subject.
2- Main References (Sources)	books, periodicals, software and websites on the subject.
أ) Recommended books and references (scientific journals, reports, ...)	Recent scientific research and journals in the field of specialization
ب) Electronic references, websites, ...	Websites of universities, institutes and specialized research centers engineering and technical websites.

12. Curriculum Development Plan
Researching the latest scientific developments in this topic, collecting scientific material on digital and logical circuits, and finding sufficient sources on developments in computer systems in order to add them to the prescribed curriculum in a way that serves its development.

Course Description Form

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the programme description.

13. Educational institution	**Northern Technical University - Al-Huwayjah Technical Institute**
14. Scientific Department / Center	**Medical Equipment Maintenance Technology Department**
15. Course Name/Code	**Electrical DrawingMDMT105**
16. Available attendance forms	**My presence**

Level 1 / Course 2	Chapter/Year .17
45	Number of study hours (total) .18
2025-4-16	Date this description was prepared .19
	Course objectives .20
Teaching the student how to draw electrically using AutoCAD and using drawing and editing commands and knowing how to represent and draw electrical and electronic symbols and circuits and how to insert them from the AutoCAD library	

Course outcomes, teaching, learning and assessment methods .21
A- Cognitive objectives 1- Knowing all electrical, electronic and digital symbols 2- Knowing how to draw simple and complex electrical circuits 3- Knowing how to use the symbols in the program library and how to call them 4- Knowledge of electrical and electronic board design

. B - Course specific skill objectives
1- Review of drawing and editing commands in AutoCAD 2- Calculating the estimated costs of panels by knowing the number and types of electrical appliances used 3- Design electrical panels and diagrams for installations and prepare statements
Teaching and learning methods
1- Practical lectures 2- Practical applications

Evaluation methods
Daily class test -1 **Monthly practical test -2** **Duties -3**
C- Emotional and value-based goals **Increase the student's self-confidence -1** **Time management and not wasting it -2** **Increase the spirit of competition -3**
Teaching and learning methods
Giving lectures -1 **Practical applications -2** **Use of modern means (calculator and internet) -3**
Evaluation methods
Practical test -1 **Theoretical test -2** **Duties -3**
transferable skills (other skills related to employability and personal development). Drawing plans for engineering projects **-1** Drawing fine details of engineering components **-2** Coloring engineering drawings **-3**

Course structure .22

Chapter One

Evaluation method	Teaching method	Required learning outcomes Unit name/topic	Watches	The week
+ Paper test practical test	Theoretical + lecture practical lecture	Explanation of electrical and electronic symbols	2	1
Theoretical + lecture practical lecture	Theoretical + lecture practical lecture	Electrical and electronic symbol board drawing	2	2
+ Paper test practical test	Theoretical + lecture practical lecture	Explain how to distribute and install ,measuring devices (ammeter , Voltmeter wattmeter , protection devices (fuses, circuit breakers , circuit breakers), (switches, etc.)	2	3
+ Paper test practical test	Theoretical + lecture practical lecture	Foundations Electrical, drawing a special board for the electrical installations of the .room With a salt store in it	2	4
+ Paper test practical test	Theoretical + lecture practical lecture	Drawing a complete wiring diagram for a . fluorescent tube	2	5
+ Paper test practical test	Theoretical + lecture practical lecture	Drawing of an electronic wiring board .containing a set of circuits Electronic	2	6
+ Paper test practical test	Theoretical + lecture practical lecture	Draw a board for an electronic circuit .containing gates	2	7
+ Paper test practical test	Theoretical + lecture practical lecture	Drawing a circuit board containing integrated .circuits	4	9-8
+ Paper test practical test	Theoretical + lecture practical lecture	Drawing a circuit board containing gates and .integrated circuits	2	10
+ Paper test practical test	Theoretical + lecture practical lecture	Drawing a board to control the speed of a .three-phase motor	2	11
+ Paper test practical test	Theoretical + lecture practical lecture	Explain how to read a map or a set of maps .for electrical circuits	2	12
+ Paper test practical test	Theoretical + lecture practical lecture	Introducing the student to how to use the ink lam	2	13
+ Paper test practical test	Theoretical + lecture	Drawing parts of a circuit diagram containing .electrical components Or electronic	4	15-14

	practical lecture			

Infrastructure .23 Classrooms -1 Computer lab -2	
Curriculum Development Plan .24 Vocabulary update -1 Providing the laboratory with a modern version of AutoCAD -2	
Required textbooks -1	Engineering drawing book for beginners
Main references (sources) -2	AutoCAD for beginners
A- Recommended books and ,references (scientific journals (.reports, etc	Engineering and construction drawing book
...B - Electronic references, websites	Download the book Learn AutoCAD from scratch to kutub-download Download bookspdf | professionalism

Course Description Form

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the programme description.

Educational institution .25	Northern Technical University - Al-Huwayjah Technical Institute
Scientific Department Center / .26	Medical Equipment Maintenance Technology Department

Engineering DrawingMDMT110	Course Name/Code .27
My presence	Available attendance forms .28
First year \ first semester	Chapter/Year .29
45	Number of study hours (total) .30
2025-4-16	Date this description was prepared .31
Course objectives .32	
Teaching the student engineering drawing using AutoCAD and using drawing and modification commands, knowing the types of drawing lines, and creating engineering drawings.	

Course structure.33

Chapter One

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Watches	The week
+ Paper test practical test	Theoretical + lecture practical lecture	The importance of - engineering drawing AutoCAD application in engineering drawing Drawing sheet - - measurement Overview of the AutoCAD window.	introduction	3	1
Theoretical + lecture practical lecture	Theoretical + lecture practical lecture	Types of lines in - engineering drawing Using drop-down menus for lines and text.	Drawing lines	3	2
+ Paper test practical test	Theoretical + lecture practical lecture	Drawing basic objects.	Drawing basics	6	4-3
+ Paper test practical test	Theoretical + lecture practical lecture	Edit graphics - use the status bar.	Edit graphics	6	6-5
+ Paper test practical test	Theoretical + lecture practical lecture	- Drawing operations - dimensions applications.	Drawing operations	9	9 – 8 – 7
+ Paper test practical test	Theoretical + lecture practical lecture	– Isometric drawing drawing a shape that contains a square,	Drawing geometric shapes	12	13-12-11-10

		rectangle, circle, and .triangle			
+ Paper test practical test	Theoretical + lecture practical lecture	- Projection theory orthographic projection of simple .shapes	Projection theory	6	14-15

Course outcomes, teaching, learning and assessment methods .34
A- Cognitive objectives Knowing the types of drawing lines -5 Knowing how to draw a complete engineering drawing -6 Knowledge of drawing using AutoCAD -7 Knowing 2D drawing and putting measurements on the board -8

. B - Course specific skill objectives **Study the draw and edit commands in AutoCAD -4** **Putting measurements on the drawing -5** **Complete engineering drawing -6**
Teaching and learning methods
Theoretical lectures -3 **Practical applications -4**
Evaluation methods
Theoretical test -4 **Practical test -5** **Duties -6**
C- Emotional and value-based goals **Increase the student's self-confidence -1** **Time management and not wasting it -2** **Increase the spirit of competition -3**
Teaching and learning methods
Giving lectures -4 **Practical applications -5** **Use of modern means (calculator and internet) -6**
Evaluation methods
Practical test -4 **Theoretical test -5** **Duties -6**
transferable skills (other skills related to employability and personal development). Drawing plans for engineering projects **-4** Drawing fine details of engineering structure parts **-5** Coloring engineering drawings **-6**

Infrastructure.35 **Classrooms -3** **Computer lab -4**

Curriculum Development Plan .36 Vocabulary update -3 Providing the laboratory with a modern version of AutoCAD -4	
Required textbooks -1	Engineering drawing book for beginners
Main references (sources) -2	AutoCAD for beginners
A- Recommended books and ,references (scientific journals (.reports, etc	Engineering and construction drawing book
...B - Electronic references, websites	Download the book Learn AutoCAD from scratch to professionalism kutub-download Download bookspdf |

Course Description Form

Course Name: Mathematics 1

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be

Educational institution .37	Northern Technical University - Al-Huwayjah Technical Institute
Scientific Department Center / .38	Medical Equipment Maintenance Technology Department
Course Name/Code .39	(TIH100) Mathematics 1
Available attendance forms .40	My presence
Chapter/Year .41	First year \ first semester

30	.42 Number of study hours (total)
2025-4-16	.43 Date this description was prepared
.44 Course objectives	
,Teaching the student to know how to solve equations and arithmetic operations on matrices .draw functions, find derivatives and integrate functions	

.45 Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives
-9 Knowing the arithmetic operations on matrices
-10 Knowledge of derivatives and their applications
-11 Knowing the applications of differentiation in the field of irrigation
-12 Knowing the methods of integration

. B - Course specific skill objectives
-7 Drawing functions
-8 vector analysis
Teaching and learning methods
-5 Theoretical lectures

Evaluation methods
Theoretical test -7 **Duties -8** **Reports -9**
C- Emotional and value-based goals **Increase the student's self-confidence -1** **Time management and not wasting it -2** **Increase the spirit of competition -3**
Teaching and learning methods
Giving lectures -7 **Use of modern means (calculator and internet) -8**
Evaluation methods
Theoretical test -7 **Duties -8** **Reports -9**
transferable skills (other skills related to employability and personal development). **Ability to analyze moments and apply them in the field of irrigation and engineering -7** **Ability to find velocity and acceleration through applications of differentiation -8**

Course structure .46					
Chapter One					
Evaluation method	**Teaching method**	Unit name/topic	Required learning outcomes	Watches	The week
+ Paper test report	**Theoretical lecture**	**- Function Definition of logarithmic function And the Asian Trigonometry and graphing functions**	**introduction**	**2**	**1**
+ Paper test report	**Theoretical lecture**	Goals - Goals of Algebraic and Logarithmic Functions	**The purpose**	**2**	**2**
+ Paper test report	**Theoretical lecture**	Vectors - Vector Analysis - Scalar and Vector Quantities	**Vectors**	**4**	4-3
+ Paper test report	**Theoretical lecture**	Problems in the analysis of forces and moments - and applications in the fields of irrigation	**Moment applications**	**2**	**5**
+ Paper test report	**Theoretical lecture**	- Derivatives Application in Irrigation, Power Analysis and Surveying Derivatives of basic functions Logarithmic and trigonometric	**Derivative**	**4**	**7-6**
+ Paper test report	**Theoretical lecture**	- Differentiation Chain Rule and Position Problems - Implicit Functions Higher Order Derivatives ,Tangent equation maximum and minimum limits of a function , and inflection points Differential applications in irrigation field speed and acceleration	**differentiation**	**8**	**11-8**

+ Paper test report	Theoretical lecture	Indefinite Integration for Algebraic - Functions exponential and trigonometric functions - Definite Integration Applications to Different Functions Area Under a Curve Area Between Two - Curves with Applications in Irrigation	integration	8	15-12

Infrastructure.47 Classrooms -5	
Curriculum Development Plan.48 Vocabulary update -5	
Teaching bag for mathematics	Required textbooks -1
bookCalculus	Main references (sources) -2
Journal of Mathematics Education	A- Recommended books and ,references (scientific journals (.reports, etc
https://ar.wikipedia.org/wiki/%D9%85%D8%AC%D9%84%D8%A9_%D8%A7%D9%84%D8%B1%D9%8A%D8%A7%D8%B6%D9%8A%D8%A7%D8%AA	...B - Electronic references, websites

Course Description Form

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the programme description

49. Educational institution	Northern Technical University - Al-Huwayjah Technical Institute
50. Scientific Department / Center	Medical Equipment Maintenance Technology Department
51. Course Name/Code	Mathematics 2)TIH101(
52. Available attendance forms	My presence
53. Chapter/Year	First year \Second semester
54. Number of study hours (total)	30
55. Date this description was prepared	2025-4-16
56. Course objectives	
Teaching the student to know how to solve equations and arithmetic operations on matrices, draw functions, find derivatives and integrate functions.	

57. Course outcomes, teaching, learning and assessment methods

A- Cognitive objectives Knowing the arithmetic operations on matrices -13 Knowledge of derivatives and their applications -14 Knowing the applications of differentiation in the field of irrigation -15 Knowing the methods of integration -16

. B - Course specific skill objectives **Drawing functions** -9 vector analysis -10
Teaching and learning methods
Theoretical lectures -6
Evaluation methods
Theoretical test -10 **Duties -11** **Reports -12**
C- Emotional and value-based goals **Increase the student's self-confidence -1** **Time management and not wasting it -2** **Increase the spirit of competition -3**
Teaching and learning methods
Giving lectures -9 **Use of modern means (calculator and internet) -10**
Evaluation methods

Theoretical test -10 **Duties -11** **Reports -12**
transferable skills (other skills related to employability and personal development). **-9 Ability to analyze moments and apply them in the field of irrigation and engineering** **-10 Ability to find velocity and acceleration through applications of differentiation**

Course structure .58

Chapter One

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Watches	The week
+ Paper test report	Theoretical lecture	Rotational volumes and finding arc length with examples	Sizes	2	1
+ Paper test report	Theoretical lecture	Integration Methods Numerical - Methods of Integration	integration	4	3-2
+ Paper test report	Theoretical lecture	Solving differential - equations homogeneous, non-homogeneous and linear	Differential equations	4	5-4
+ Paper test report	Theoretical lecture	Using the Simpson-Skewing Ratio Rule in Integration	Numerical integration	4	7-6
+ Paper test report	Theoretical lecture	Complex numbers and finding the polar angle	Complex numbers	4	9-8
+ Paper test report	Theoretical lecture	Frequency - Distributions Graphing the Frequency Curve and Histogram ,Finding the mean median, mode and variance	Statistics	4	11-10
+ Paper test report	Theoretical lecture	Computer applications in drawing functions and statistics Computer applications in the subject of differentiation Computer applications on the subject of integration	Computer applications	8	15-12

Infrastructure.59

Classrooms -6	
Curriculum Development Plan.60 Vocabulary update -6	
Required textbooks -1	Teaching bag for mathematics
Main references (sources) -2	bookCalculus
A- Recommended books and ,references (scientific journals (.reports, etc	Journal of Mathematics Education
...B - Electronic references, websites	https://ar.wikipedia.org/wiki/%D9%85%D8%AC%D9%84%D8%A9_%D8%A7%D9%84%D8%B1%D9%8A%D8%A7%D8%B6%D9%8A%D8%A7%D8%AA

Course Description Form

Physiology

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the programme description.

Educational institution .61	Northern Technical University - Al-Huwayjah Technical Institute
Scientific Department Center / .62	Medical Equipment Maintenance Technology Department
Course Name/Code .63	MDMT103 Physiology
Available attendance forms .64	My presence
Chapter/Year .65	Level 1 / Course 2

30=15*2	.66 Number of study hours (total)
2025-4-16	.67 Date this description was prepared
.68 Course objectives	
,Knowing the structure and physiology of the body's various systems: respiratory -1 urinary, nervous, muscular, etc., in addition to thermal balance, the state of internal .homeostasis of the body, and other physiological matters .Knowing the correct values for all physiological variables in the body -2	

.69 Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives A-1 Knowing the functions and composition of the different body systems A-2 Developing the student's ability to understand the structure and function of the .body's systems A- 3 Developing the student's ability to evaluate the health of the body's various systems through his knowledge of the values of the indicators. Physiology

. B - Course specific skill objectives
B-1 To enable the student to understand the functions and physiology of the various .systems of his body B- 2 To provide the student with the ability to evaluate the individual's health .through his ability to read different analyses
Teaching and learning methods
Theoretical lectures -7

Discussion sessions -8

Reports -9

Evaluation methods

Written exams -13
Oral exams -14
Duties assigned to students -15
Reports -16

C- Emotional and value-based goals

A-1 Enhancing the student's ability to understand the mechanism of the body's work and how the body's systems work in a coordinated and integrated manner.
body.
disease.
health deterioration.

Teaching and learning methods

Relying on concrete evidence and examples of human rights and the concept of democracy that reflects the nature of society and the environment that nurtures the individual.

- Teaching students the mechanism of thinking scientifically , analysis and deduction.
- Motivating students to find real problems and solve them in a scientific way.
- Brainstorming gave students the opportunity to brainstorm and discuss their ideas.
- Lectures.
- Intellectual questions and discussions.

Evaluation methods

. Written exams
- Daily and surprise exams.
- The student senses the extent to which students have comprehended the assigned material.
- Oral questions.
- Trying to apply human rights and the concept of democracy to contemporary reality.

transferable skills (other skills related to employability and personal .(development D- 1 Evaluation of the individual's health status D- 2 Knowing the physiological functions of the different body systems

Physiology

Hours weekly				Year Study	Name of the material
the total	Applied	Work Y	Theoretical	First	Physiology
2		-	2		

: Goals Material

General and specific: Preparing the student to study and understand medical devices by explaining the physiological changes, especially the electrical ones, that occur when measuring the various organs of the body and their function and their relationship to the devices used to measure and diagnose various .phenomena and diseases

Vocabulary	
Muscle tissue / Types of muscles Changes that ,occur in the muscle during and after contraction especially electrical changes	First week
Simple muscle contraction. Muscle pain. Muscle strain. Effect of successive stimuli on the muscle .and its consequences	Second week
,The sensory nervous system (its parts, functions functional areas in the brain, transmission of ,stimuli, the role of nerves in transmitting stimuli (reflexes	The third week

Autonomic nervous system (sympathetic nervous (system, parasympathetic nervous system	Week 4
Circulatory system (heart, its structure and ,function, importance of heartbeats, blood vessels (their components, types, function and importance	Week 5
Blood pressure (measuring its importance, the role (of blood in the body	Week 6
,Respiratory system (breathing, types of breathing blood work in the respiratory system, respiratory (movements, cavity pressure	Week 7
Lung expansion, respiratory capacity, vital capacity, components of inspired air	Week 8
,The digestive system (its structure, parts ,importance, digestive glands, liver, secretions (stages of digestion	Week 9
Carbohydrate digestion, protein digestion, fat digestion, absorption, metabolism, defecation	Week 10
Urinary system (kidney, ureter, bladder, external opening, composition of parts of the urinary (system, importance of the urinary system	Week eleven
Urine formation, urinary urea, urinary stones, effect of kidneys on blood pressure, components of urine and its properties	Week 12
Endocrine glands - types and importance	thirteenth week
secretions, endocrine glands, endocrine functions	Week Fourteen
Reproductive system (its importance, components (and functions	Week 15

Sources

Bioelectricity
By: Mary .A. Brazier .
Text Book Of Physiology

pressure Blood- its importance- its role Blood So The body.	atheistic ten The second ten
The device Breathing(Breathing- Types Breathing- Action Blood So device Breathing- Movements Breathing- Pressure Cavitation.)	the third ten The fourth ten
expansion Lung- Capacity Breathingcapacity Al-Hawiyah - Ingredients airThe appetite	Fifth ten And the sixth ten
The device Digestion(structure- parts- importance- glands) Digestion- Liver- Secretions Digestion- Stages Digestion.)	Seventh ten The eighth ten
digest Carbohydrates- Digestion Proteins- Digestion Fats - Absorption- Representation- defecation.	Ninth ten Twenty
The device Urine(College- Ureter - Bladder- Orifice External Formation parts Device- Importance The device Urine.	atheistic twenty and twenty-two
Formation Pearls- Alura Urine And the pebbles Urine- Affected All of them on pressure Blood- Components pearls And their properties.	the third Twenty- fourth Twenty
Glands Deafness- types Oh my!	-Fifth Twenty sixth Twenty
Secretions- glands Deaf- Business Glands Deaf	Seventh Twenty-eighth Twenty
The device Reproduction- its components- its functions.	Ninth Twenty Thirty

: Sources

B

ioelectricity By:

Mary A. Brazier.

Text Book Of

Physiology

Course Description Form

1 English

Course Description

English must be studied to help students write and understand topics and skills specific to the . engineering field, in addition to developing ideas for how to write research and presentations

Course outcomes, teaching, learning and assessment methods .70	
A- Cognitive objectives • Learn how to talk to people • Developing scientific knowledge skills in engineering subjects • Develop skills in using methods to prevent the theft of intellectual property rights • Active participation in class and interaction with students .	
Northern Technical University - Al-Huwayjah Technical Institute	**Educational .71 institution**
Medical Equipment Maintenance Technology Department	**Scientific Department .72 Center /**
NTU101 English language	**Course Name/Code .73**

My presence	**Available attendance forms .74**
First year	**Chapter/Year .75**
30	**Number of study hours (total) .76**
2025-4-16	**Date this description was prepared .77**

: Course outcomes , teaching, learning and evaluation methods .78
A- Cognitive objectives A1- Teaching simple conversation in English A2- Use of English grammar A3- Use of English meanings and vocabulary
. B - Course specific skill objectives B1- Mastering the use of English grammar B2- Mastering the use of Arabic vocabulary in English
Teaching and learning methods
.1 Discussion and dialogue in presenting the topic .2 Using modern illustrative methods such as data shows to clarify important points in the lesson. .3 Preparing monthly and annual research and articles to clarify the scientific material. .4 Explaining the subject in a simplified manner and using modern technology in education. .5 Raising questions and eliciting answers from them .6 Emphasis on research and deduction method .7 Linking the scientific material with external scientific materials related to achieving the goal and purpose of the lesson.

Evaluation methods
1. Weekly, monthly and semester exams 2. Arranging discussion groups inside the classroom to discuss the lesson material to overcome the difficulties faced by some students. 3. Testing students during the application phase
C- Emotional and value-based goals A1- Deepening the student's self-confidence A2- Creating a creative teacher who loves the teaching profession . **A3** - Providing the student with all the books, sources and external information he needs. A4- Deepening the love of the English language and practicing it
Teaching and learning methods
1. Discussion and dialogue in presenting the topic . 2. Using modern illustrative methods such as data shows to clarify important points in the lesson. 3. Preparing monthly and annual research and articles to clarify the scientific material. 4. Explaining the subject in a simplified manner and using modern technology in education. 5. Raising questions and eliciting answers from them 6. Emphasis on research and deduction method 7. Linking the scientific material with external scientific materials related to achieving the goal and purpose of the lesson.
Evaluation methods
1. Weekly, monthly and semester exams 2. Arranging discussion groups inside the classroom to discuss the lesson material to overcome the difficulties faced by some students. 3. Testing students during the application phase

transferable skills (other skills related to employability and personal .(development D1 - Providing the student with all the books, sources and external information he .needs D2- Conducting workshops inside the hall D3- Using modern technology in discussing the scientific material to clarify it more .because it is one of the modern methods of education

Course structure .79

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes Achieving goals , cognitive, skills) emotional, value-based, or general (skills	**Watches**	**The week**
Feedback and questioning	Lecture in presentation and live video	The Sentence	cognitive and skill goals	2	**1**
Feedback and questioning	Lecture in presentation and live video	Tenses	cognitive and skill goals	2	**2**
Feedback and questioning	Lecture in presentation and live video	Tenses+ Quiz	cognitive and skill goals **and evaluating them**	2	**3**
Feedback and questioning	Lecture in presentation and live video	articles	cognitive and skill goals	2	**4**
Feedback and questioning	Lecture in presentation and live video	demonstratives	cognitive and skill goals	2	**5**

Feedback and questioning	Lecture in presentation and live video	How to translate the Sentence into English text?	cognitive and skill goals	2	**6**
Feedback and questioning	Lecture in presentation and live video	Arabic text translation +Quiz	cognitive and skill goals **And its evaluation**	2	**7**
		First monthly test	evaluation	2	**8**
Feedback and questioning	Lecture in presentation and live video	Passive voice and active voice	cognitive and skill goals	2	**9**
	Lecture in presentation and live video	Question–tags +interrogative	cognitive and skill goals	2	**10**
Feedback and questioning	Lecture in presentation and live video	Passage and questions	cognitive and skill goals **And emotional**	2	**11**
Feedback and questioning	Lecture in presentation and live video	Parts of speech	cognitive and skill goals	2	**12**
Feedback and questioning	Lecture in presentation and live video	Appropriate academic writing	cognitive and skill goals	2	**13**
Feedback and questioning	Lecture in presentation and live video	What qualification dose the student needs to write a good paragraph? +Quiz	cognitive and skill goals **And its evaluation**	2	**14**
First semester pursuit exam				2	**15**

Infrastructure .80
new headway plus for beginners :Required textbooks -1
John Soars 2012 - :Main references (sources) -2
: A- Recommended books and references (scientific journals, reports, etc.) Oxford Modern English Grammar
:B - Electronic references, Internet sites http://owl.english.purdue.edu/handouts/grammar • http://www.teachingenglish.org.uk/ • http://englishplus.com/grammar/contents.htm • http://www.englishclub.com/grammar/index.htm • www.learnenglish.de/basics • www.agendaweb.org

Curriculum Development Plan .81
Equipping language laboratories with audio analysis devices Adding NLP vocabulary Updating the curriculum vocabulary to keep pace with modern linguistic developments

Course Description Form

Arabic

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the programme description.	
1. Educational institution	Northern Technical University - Al-Huwayjah Technical Institute
83. Scientific Department / Center	Medical Equipment Techniques
84. Course Name/Code	(NTU103) Arabic Language
85. Available attendance forms	My presence
86. Chapter/Year	First year \ first semester
87. Number of study hours (total)	30
88. Date this description was prepared	2025-4-16
89. Course objectives	
Teaching the student to know the rules of the Arabic language and how to address and correspond officially between official institutions	

Course outcomes, teaching, learning and assessment methods .90
A- Cognitive objectives Knowing common language mistakes -17 The difference between the letters Dhad and Tha -18 Knowing how to use punctuation marks -19 Administrative discourse -20 Administrative correspondence -21

. B - Course specific skill objectives
The art of communication between government departments -11 Administrative correspondence -12
Teaching and learning methods
Theoretical lectures -10
Evaluation methods
Theoretical test -17 **Duties -18** **Reports -19**
C- Emotional and value-based goals **Increase the student's self-confidence -1** **Time management and not wasting it -2** **Increase the spirit of competition -3**
Teaching and learning methods

Giving lectures -11 **Use of modern means (calculator and internet) -12**
Evaluation methods
Theoretical test -13 **Duties -14** **Reports -15**
transferable skills (other skills related to employability and personal development). **administrative correspondence correctly -11** **Avoid common language mistakes -12** Use of punctuation marks **-13**

Course structure .91					
Chapter One					
Evaluation method	**Teaching method**	Unit name/topic	Required learning outcomes	Watches	The week
+ Paper test report	**Theoretical lecture**	Introduction to Grammatical Errors – The Closed Taa, the Long Taa, and the Open Taa	**introduction**	**2**	**1**
+ Paper test report	**Theoretical lecture**	Rules for writing the extended and - shortened alif solar and lunar letters	**General rules**	**2**	**2**
+ Paper test report	**Theoretical lecture**	Dad and Tha	**filling**	**2**	**3**
+ Paper test report	**Theoretical lecture**	Writing the hamza	**filling**	**2**	**4**
+ Paper test report	**Theoretical lecture**	punctuation marks	**filling**	**2**	**5**
+ Paper test report	**Theoretical lecture**	Noun, verb and the difference between them	**Grammar principles**	**2**	**6**
+ Paper test report	**Theoretical lecture**	Effects	**rules**	**2**	**7**
+ Paper test report	**Theoretical lecture**	Number	**rules**	**2**	**8**
+ Paper test report	**Theoretical lecture**	Common Language Mistakes Applications	**rules**	**4**	**10-9**
+ Paper test report	**Theoretical lecture**	Noon and - Tanween Meanings of Prepositions	**rules**	**2**	**11**
+ Paper test report	**Theoretical lecture**	Formal aspects of administrative discourse	**Correspondences**	**2**	**12**
+ Paper test report	**Theoretical lecture**	Administrative discourse language	**Correspondences**	**4**	**14-13**
+ Paper test report	**Theoretical lecture**	Administrative correspondence samples	**Correspondence**	**2**	**15**

Infrastructure .92 **Classrooms -7**	
Curriculum Development Plan .93 **Vocabulary update -7**	
Required textbooks -1	**Arabic Grammar Principles**
Main references (sources) -2	**Arabic Lessons Collection**
A- Recommended books and ,references (scientific journals (.reports, etc	Arabic Language Magazine
...B - Electronic references, websites	https://brill.com/view/journals/mrkz/mrkz-overview.xml

Course Description Form

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the programme description.

Educational institution .94	**Northern Technical University - Al-Huwayjah Technical Institute**

Medical Equipment Maintenance Technology Department	Scientific Department .95 Center /
(TIH102) Laboratories	Course Name/Code .96
My presence	Available attendance .97 forms
First year \ first semester	Chapter/Year .98
45	Number of study .99 hours (total)
2025-4-16	Date this description .100 was prepared
Course objectives .101	
know the work of filing, welding, tinsmithing, turning and Teaching the student to carpentry	

Course outcomes, teaching, learning and assessment methods .102
A- Cognitive objectives
-22 ,*Training the student on correct filing work and how to use measuring tools* *.files, saws, drills and chisels*
-23 train in the welding workshop on various Teaching the student to Number, tools and equipment in the workshop
-24 How to plan on sheet metal, how to cut, assemble and weld
-25 Training the student on different lathe machines and training on the necessary measuring tools

. B - Course specific skill objectives **The cooler** -13 **Lathe** -14 **Carpentry** -15 **Welding** -16
Teaching and learning methods
Practical lectures -11
Evaluation methods
Theoretical test -20 **Practical test -21** **Reports -22**
C- Emotional and value-based goals **Increase the student's self-confidence -1** **Time management and not wasting it -2** **Increase the spirit of competition -3**
Teaching and learning methods
Giving lectures -13 **Use of modern means (calculator and internet) -14** **Application on devices and available tools -15**
Evaluation methods
Theoretical test -16 **Practical test -17** **Reports -18**
transferable skills (other skills related to employability and personal development). **Ability to work in lathes -14** **Ability to work in welding laboratories -15** **Ability to work in the profession of tinsmithing -16**

Course structure .103					
Chapter One					
Evaluation method	**Teaching method**	Unit name/topic	Required learning outcomes	Watches	The week
+ Paper test practical test	**Practical lecture**	***Focus on training the student on correct filing work and how to use ,measuring tools ,files, sawing drilling and .threading Occupational safety in the workshop tools : (graded ruler – measuring tape – paper ruler and how to use and maintain (them C– The planning process (the shankra): The basic surfaces used are (the straight compass – the planning compass the tail and how – to tail – the display material – the right angle – the – regular scribe the sensitive scribe the height gauge –***	**filings**	**3**	**1**

		the universal – protractor and the angle .(measurement ,D– Files: Types shapes, how to use, maintain and clean them H– Sickles, types and methods of attaching work to them , simple exercise on filing and planning operations according to the executive drawing			
+ Paper test practical test	**Practical lecture**	**Saw Cutting Hand Saw and Hand Saw Blade Saw Blade – – Installation Requirements for Sawing An exercise that – includes filing – planning publishing according to the dimensions given in the executive .drawing**	**Saw cutting**	**3**	**2**
+ Paper test practical test	**Practical lecture**	**- Types of drills Types of primers and how to use them - Methods for extracting broken screws The exercise – includes filing planning – drilling**	**The hole**	**3**	3

		according to the dimensions given in the executive .drawing			
+ Paper test practical test	Practical lecture	The training in the welding workshop focuses on the ,various tools equipment and devices available in the workshop .in the best way Occupational safety in the workshop Number and tools used Electric welding machines - their parts - how to operate them ,D– Welding wires ,their types ,measurements ,selection performing exercises (straight lines, parallel lines dictating an , (angle	Welding	3	4
+ Paper test practical test	Practical lecture	Welding exercise – gates – molds) (pipes	Welding training	3	5
+ Paper test practical test	Practical lecture	Oxyacetylene gas welding أ- Occupati onal safety at work ب- Types of gases	Oxygen welding	3	6

		used in gas welding and how to use them C– Performing self– welding – exercises welding with iron wire – welding (with brass wire			
+ Paper test practical test	Practical lecture	Focus on training the student on how to plan on metal sheets, how to cut, assemble and weld sheets using planning tools, manual and mechanical cutting, bending tools and manual and mechanical .welding tools Occupational safety in the workshop Measuring tools C- Planning tools D- Types of plates and their measurements Practical exercise using the mentioned tools simple exercise) using the (mentioned tools	Tinsmithing	3	7
+ Paper test practical test	Practical lecture	Cutting and أ- bending machines	Pieces	3	8

		Spot welding –ب machines -C Implementation of an exercise on ,planning, cutting bending and welding operations - casting molds) (gates			
+ Paper test practical test	Practical lecture	– Linking Way Manual Treadmill American – Treadmill Conducting –أ an exercise on ,planning cutting and connecting operations cooling) duct – water (tank	Link	3	9
+ Paper test practical test	Practical lecture	The focus is on training the student on different lathe machines and training on the measuring tools needed to carry out various exercises and how to make external and internal teeth and how to choose .cutting pens	Lathe	3	10

		أ- Occupational safety in the lathe workshop ب- Lathe parts and how to work on it – speed tables – types – of lathe pens connecting the – workpieces adjusting the center – tools C- Carrying out lathe operations (straight, level, graded) using measuring tools.			
+ Paper test practical test	Practical lecture	Explanation of the laws of external and internal robbed lathe Carry out a mapping exercise for an external and internal staircase.	exercises	3	11
+ Paper test practical test	Practical lecture	Explanation of the laws of external and internal teeth Performing external and internal dental drilling exercises	exercises	3	12
+ Paper test practical test	Practical lecture	The student is trained to use the number, carpentry tools and measuring tools used, and to learn	Carpentry	3	13

		about the different carpentry machines, safety procedures and machine maintenance. أ- Occupational safety in the workshop ب- Types of wood, their sources and uses ج- Measuring tools and hand tools used in the carpentry workshop Perform an exercise for a parallelogram, a cylinder, and a hexagon.			
+ Paper test practical test	Practical lecture	Identifying the machines in the carpentry workshop and the necessary safety and maintenance parts – Doing exercises on how to connect the – wood parts Performing the exercise of hanging it in the (T and t) form of	Carpentry	3	14
+ Paper test practical test	Practical lecture	Introducing the student to wood	Wood stain	3	15

		– dyeing methods paragraphs (types – (shapes – carrying out a diverse drilling exercise			

Infrastructure .104 **Classrooms -8** **Workshop halls -9** **Training devices -10**	
Curriculum Development Plan .105 **Vocabulary update -8**	
Workshop Technology Basics	**Required textbooks -1**
Production technology and workshop work	**Main references (sources) -2**
Workshop and production technology	**A- Recommended books and ,references (scientific journals (.reports, etc**
https://books-world.net/production-technology-and-workshop-work-arabic-book/#download	**...B - Electronic references, websites**

Course Description Form

Human rights and democracy

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether

the student has made the most of the learning opportunities available. It must be linked to the programme description.

Educational institution .106	Northern Technical University - Al-Huwayjah Technical Institute
Scientific Department / Center .107	Medical Equipment Maintenance Technology Department
Course Name/Code .108	(NTU100 Human rights and democracy
Available attendance forms .109	My presence
Chapter/Year .110	First year
Number of study hours (total) .111	30
Date this description was prepared .112	2025-4-16
Course objectives .113	
1- Introducing students to human rights and duties towards their society. 2- Following the historical roots of knowledge of human rights and the stages of their development throughout the ages. 3- Consolidating the concepts of rights, freedom and duties of the individual and society. 4- Explaining the constitutional articles in the Iraqi constitution that pertain to human rights and explaining them to students. 5- Highlighting the importance of knowing the individual's rights in carrying out his duties to the fullest extent. 6- Shedding light on democracy and knowing its various forms.	

Course outcomes, teaching, learning and assessment methods .114

A- Cognitive objectives

A1- Students benefit from knowing the types of rights and their scope of application.

A2- Explaining the historical stages of human rights and the extent of their development.

A3- Knowing the concept of freedoms and democracy correctly.

A4- Providing the student with the moral values that must be adhered to and clarifying the most important rights and duties assigned to the individual.

5A- Identifying the rights and duties of the Iraqi individual

B - Course specific skill objectives.

1- Introduction to the history of human rights and stages of development.

2- Spreading culture and nourishing the student from the Islamic side.

3- How to preserve society and the homeland by enhancing their love for the country.

4- Identify the most important rights granted to them according to international norms and laws.

Enhancing citizenship among students.

Teaching and learning methods

12- Theoretical lectures

13- Discussion sessions

14- Reports

Evaluation methods

23- Written exams
24- Oral exams
25- Duties assigned to students
26- Reports

C- Emotional and value-based goals

C- Emotional and value-based goals

A1- Teaching students to search for real problems, link them to the scientific material, and present them in a logical order and sequence.

- Encourage students to be objective in discussions about the challenges facing the country.
- Embodying the concept of freedoms for students and explaining wrong practices, their consequences, and how to avoid them.

A2- Giving top priority to expressing rights.

A3- Emphasizing the importance of human rights.

A4- Objectivity in discussions.

Teaching and learning methods

Relying on concrete evidence and examples of human rights and the concept of democracy that reflects the nature of society and the environment that nurtures the individual.

- Teaching students the mechanism of thinking scientifically , analysis and deduction.
- Motivating students to find real problems and solve them in a scientific way.
- Brainstorming gave students the opportunity to brainstorm and discuss their ideas.
- Lectures.
- Intellectual questions and discussions.

Evaluation methods

. Written exams

- Daily and surprise exams.
- The student senses the extent to which students have comprehended the assigned material.
- Oral questions.
- Trying to apply human rights and the concept of democracy to contemporary reality.

transferable skills (other skills related to employability and personal development).

D1- Skills in searching for books and research closely related to the history of human rights and the concept of democracy.

D2- Reviewing international laws and conventions related to human rights.

D3- Internet usage skills and electronic search mechanism .

Course structure -10

Evaluation method	Teaching method	Unit/Topic Name	Required learning outcomes	Watches	The week
discussion	Lectures	The concept of human rights- Characteristics and types of .human rights	Identifying the types of rights and their areas of application	2	1
discussion	Lectures	The historical development of - .human rights .Human rights in ancient times -	Traci ng the historical roots of the concept of human rights	2	2
Daily exam	Lectures and discussions	Human rights in the Middle - Ages - Human rights in the present era		2	3
discussion	Lectures	Human rights in heavenly- -laws		2	4
surprise exam	Lectures	The most important human rights stipulated by the laws ,(the Qur'an and Sunnah) governments and organizations		2	5
discussion	Lectures and discussions	Human rights in Islam Imam Ali bin Abi Talib between man and his duties			6
discussion	Lectures and discussions	Rights and Freedoms in the Iraqi Constitution of 2005		2	7
discussion	Workshop	Universal Declaration of Human Rights and Freedoms	Definition of the Universal Declaration of Human Rights and its importance as a summary of what humanity has reached after going through the two world wars	2	8
discussion	+ Lectures discussion	Women's rights - Children's rights in Islam		2	9
discussion	Lectures	The concept of democracy	Explaining the concept	2	10

			of democracy		
+ Daily exam discussion	Lectures	Historical development of the concept of democracy	Open discussions on the importance of strengthening democracy in society	2	11
discussion	+ Lectures discussion	The development of democracy in ancient times		2	12
	Lectures	Forms and characteristics of democracy		2	13
discussion	+ Lectures discussion	Pillars of democracy		2	14
discussions	+ Lectures brainstorming	Principles of the democratic system and factors leading to democratic transformation		2	15

	Infrastructure .11
Binder (Human Rights)	Required Textbooks -1
	Main References -2 (Sources)
Human Rights and Democracy Professor Ali -1 Abboudi Nehme	A- Recommended books and references (... ,Scientific journals, reports)
	B- Electronic references, with the Internet

Curriculum Development Plan . 12

- Seeking to make the subject of human rights and democracy have a tangible practical application, by applying theoretical rights and duties to reality and contemporary society.

Course Description Form

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the programme description.

115. Educational institution	Al-Huwayjah Technical Institute
116. Scientific Department / Center	Medical Equipment Techniques
117. Course Name/Code	**MDMT100** /DC Circuits
118. Available attendance forms	My presence
119. Chapter/Year	Decisions
120. Number of study hours (total)	60=15*4
121. Date this description was prepared	2025/4/16
122. Course objectives	
1- Understanding simple mathematical laws and equations	

Understanding the main concepts and knowing the rules and laws used in −2 . analyzing electrical circuits and applying them in electrical technologies .Introducing the student to electrical circuits and electrical measurements −3 Preparing the student to study the various calculations in DC circuits and learning −4 about the various theories for studying these calculations, and introducing the student .to the various measuring devices

Course outcomes, teaching, learning and assessment methods .123
A- Cognitive objectives . During the academic year, the student learns the basics of DC electrical circuits1- A2- The student learns the types of electrical resistors, how to read them, and the factors affecting them. . A3- The student learns the types of connections used in electrical circuits
B. Course specific skill objectives .B1 - Ability to design and conduct experiments, analyze and interpret data .B2 - The ability to identify, formulate and solve problems .B3- Mastery of the necessary mathematical, basic and engineering sciences .work B4- The ability to use the techniques and skills required in the
C- Emotional and value goals **Student participation in class activities and submission of assignments on time. -4** **.Adherence to occupational safety rules while working in laboratories -5** **Attention control and attention test (selective attention) -6**
Teaching and learning methods
.Explanations and clarifications -5 **.Scientific lessons -6** **.Reports -7** **.Student graduation projects -8**
Evaluation methods
Theoretical tests -4 **Practical tests -5** **Reports -6**
Teaching and learning methods
.Listen and pay attention to the teacher's explanation .4 **.Knowing the role of science and scientists in life .5** . **The student's interest in the quiet and cleanliness of the classroom** .6

Units	Weekly hours			Level Semester/1 1	Language of :instruction English	Name of the material DC circuits
	M	A	N			
4	4	2	2			

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Evaluation method	road education	Number of hours	Course details	The week
Daily and monthly tests	theoretical	2	The system of units used in electricity and the units of measurement for each substance (its parts (and multiples Mathematical applications for converting values .using units	the first
Daily and monthly tests	theoretical	2	Definition of the basic units of voltage, current and – resistance Components of an – electrical circuit Ohm's law – Factors affecting the value – of resistance Resistivity of conductive and .insulating materials	the second
Daily and monthly tests	theoretical	2	:DC circuits include .1 Connecting resistors in series with –examples 2 Connecting	the third

			resistors in parallel with examples	
Daily and monthly tests .أ	theoretical	2	Mixed 3- connection of resistors with examples	Fourth
Daily and monthly tests .1	theoretical	2	Y/ connection of(Δ) resistors and conversion from each to the other with examples	Fifth
Daily and monthly tests	theoretical	2	,Applications on series parallel, mixed, star and triangular circuits	Sixth
Daily and monthly tests	theoretical	2	Kirchhoff's Laws Kirchhoff's Law – Definition of Current and Voltage with Answers	Seventh
Daily and monthly tests	theoretical	2	Maxwell with solved examples	The eighth
Daily and monthly tests	theoretical	2	Thévenin's – Theorem Definition of Theorem – How	Ninth

			to Apply It in DC Circuits	
Daily and monthly tests	theoretical	**2**	**Applications of Thevenin's Theorem**	**tenth**
Daily and monthly tests	theoretical	**2**	**Norton's – Theorem Definition of Theorem – How to Apply It in DC Circuits**	**eleventh**
Daily and monthly tests	theoretical	**2**	**Applications of Norton's Theorem**	**twelfth**
Daily and monthly tests	theoretical	**2**	**– Congruence Theorem Definition of the Theorem – Steps for applying it in solving DC circuits that contain – more than one source Solving examples**	**thirteenth**
Daily and monthly tests	theoretical	**2**	**Definition of DC source and DC voltage source (DC power distributor) and how to convert from one to the other**	**fourteenth**
Daily and monthly tests	theoretical	**2**	**Maximum possible – – power transfer theory Definition of the theory**	**fifteenth**

			and derivation of its – special relationships Application examples	

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Achieving theoretical topics through experiments on DC circuits and training the student to use laboratory electrical devices for various measurements.

Vocabulary details	The week
Training on laboratory work methods, how to prepare reports and use devices	the first
Calculating resistances by colors – the resistance measuring device (ohmmeter) in measuring resistances by colors – and calculating the error percentage	the second
Use of DC voltage measuring devices – – Use of DC measuring devices (such as ohmmeter) – Use of DC power supply	the third
Measurement of electromotive force and internal – resistance of battery – Study of the thermal coefficient of resistance	Fourth
Determination of the specific resistance of some – conductors	Fifth
Ohm's law practically	Sixth
Connecting resistors in series – parallel (multiple – (exercises	Seventh

Mixed resistance banding (multiple exercises) –	**The eighth**
Equalizing DC Star and Triangle Circuits (Multiple (Exercises	**Ninth**
Kirchhoff's first law practically realized	**tenth**
Kirchhoff's second law practically realized	**atheistic ten**
Thévenin's Theorem Verification	**twelfth**
Norton's theory investigation	**thirteenth**
Congruence Theory Achievement	**fourteenth**
Maximum possible power transfer theory in direct current	**fifteenth**

References and sources

1. Electrical Technology (Edward Hughes)
2. Basic Circuits (AMF Brooks) pergaman press
3.Introduction to Electrical Circuits (M Romanwitz) John Willy
4. Basic Electrical Engineering (Fitzgerald & Rlgginborthan)Mc-Graw-Hill

Principles of Electrical Engineering -5

Dr. Mohamed Zaki - Dr. Muzaffar Anwar Al-Naama

Circles and Measurements Book Project -6

Course Description Form

Al-Huwayjah Technical Institute	Educational .124 institution
Medical Equipment Maintenance Technology Department	Scientific .125 Department / Center

Course .126 Name/Code	**MDMT107**AC circuits
Available .127 attendance forms	My presence
Chapter/Year .128	Decisions
Number of study .129 hours (total)	60=15*4
Date this .130 description was prepared	2025-4-16
Course objectives .131	
Understanding simple mathematical laws and equations −1 Understanding the main concepts and knowing the rules and laws used in −2 . analyzing electrical circuits and applying them in electrical technologies .Introducing the student to electrical circuits and electrical measurements −3 Preparing the student to study the various calculations in alternating current −4 circuits and learning about the various theories for studying these calculations, and .introducing the student to the various measuring devices	

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating .whether the student has made the most of the learning opportunities available
.It must be linked to the programme description

Course outcomes, teaching, learning and assessment methods .132
A- Cognitive objectives During the academic year, the student learns the basics of alternating current electrical1- . circuits A2- The student learns the types of electrical resistors, how to read them, and the factors .affecting them . A3- The student learns the types of connections used in electrical circuits
B. Course specific skill objectives .B1 - Ability to design and conduct experiments, analyze and interpret data .B2 - The ability to identify, formulate and solve problems .B3- Mastery of the necessary mathematical, basic and engineering sciences .work B4- The ability to use the techniques and skills required in the
C- Emotional and value goals **Student participation in class activities and submission of assignments on -7 .time** **.Adherence to occupational safety rules while working in laboratories -8** **Attention control and attention test (selective attention) -9**
Teaching and learning methods
.Explanations and clarifications -9 **.Scientific lessons -10** **.Reports -11** **.Student graduation projects -12**
Evaluation methods
Theoretical tests -7 **Practical tests -8** **Reports -9**
Teaching and learning methods
.Listen and pay attention to the teacher's explanation .7 **.Knowing the role of science and scientists in life .8** . **The student's interest in the quiet and cleanliness of the classroom** .9

Course Description Form

Units	Weekly hours			Level Semester/11	Language of :instruction English	Name of the material AC circuits
	M	A	N			
4	4	2	2			

Units	Weekly hours			/ First level second semester	Language of :instruction	Name of the material
	M	A	N		English	AC circuits
4	4	2	2			

Vocabulary details	The week
,Applying theories such as Norton's Theorem Thevenin's Theorem and matching to AC circuits with solving examples	the first
Power in AC circuits including power calculation – in – Circuits containing only resistance Circuits containing only inductance – Circuits containing only capacitance – Circuits containing resistance, inductance and capacitance in series and parallel – Definition of active power and how to calculate it – Reactive power and how to calculate it	the second
Total apparent power (definition) – How to draw the power triangle – Power factor – its definition and effect on AC circuits – How to improve the power factor – with practical examples	the third
Maximum Power Transfer Theory in AC Circuits Derivation of its Relationships – with – Examples	Fourth
Practical methods for measuring high, medium and small value resistors – using an ohmmeter in series and parallel – the ammeter and – voltmeter method – the compensation method using the Wheatstone bridge – the voltage divider method – the switching method – with examples of each method	Fifth
Three-phase AC circuits – definition and how to generate single-phase, two-phase and three-	Sixth

phase AC current – with a drawing of each circuit. Star and triangular voltage connections in three-phase AC circuits and the special relationships for calculating line and phase current and voltage, total power and line power phase power – advantages of each connection – when used in balanced and unbalanced loads with examples	
Solving practical examples about three-phase alternating current with triangular and star connections with balanced and unbalanced loads	Seventh
Methods of measuring power for three-phase loads – Wattmeter device, how to connect it to the circuit to measure active power – and calculate the reactive power and apparent power with an example solution Power measurement using a wattmeter and voltage – How to find the total power in this way and in the case of star and triangular connections – Using two wattmeters – Using three wattmeters	The eighth
Magnetism – Magnetic circuit – Introduction to magnetism, North and South poles – Types of magnetic materials – Basic properties of ,magnetic materials and their definition – including magnetic field – Magnetic flux Magnetomotive force – Magnetic flux density	Ninth

– and factors affecting magnetic flux Permeability and its effect – Magnetic circuits and application of Kirchhoff's laws to them	
Solve practical examples on magnetism	tenth
Self–inductance of the coil (electromagnetic induction) – its definition – special relations to find the self–inductance of the coil – mutual inductance between two coils – and relations to find the mutual inductance according to the type :of connection of the two coils, including supportive and anti–supportive series connection	eleventh
Current growth and decay curves of an inductive circuit – Explanation of this circuit and its effect on direct current – General relationship of current growth and decay in a coil – Drawing – the current and calculating the time constant Solving examples ,Charging and discharging of capacitors .including the use of capacitors in DC circuits The general relationship between charging and – discharging a capacitor and drawing current the effect of the time constant with its .calculation – solving examples	twelfth
Measuring devices, including: types of measuring devices, nature of their work, moving coil measuring devices, their installation and use in measuring voltage and current, with	thirteenth

mention of their advantages and disadvantages .and a drawing of the device	
Iron core measuring device – its structure and how to use it in measurement – its advantages and disadvantages and a diagram of the device	**fourteenth**
– Wattmeter measuring devices – its installation drawing a diagram of the device – its arrangement in the electrical circuit to measure power – torque equations – its advantages – its – disadvantages – the oscilloscope device drawing of the device – its installation – how to operate and use it	**fifteenth**

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Achieving theoretical topics through experiments on AC circuits and training the student to use laboratory electrical .devices for various measurements

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Vocabulary details	The week
Identify alternating current sources, various loads, and – methods of measuring alternating voltage using a .conventional and electronic voltmeter	**the first**
Verification of Thevenin's theorem for alternating current –	**the second**

Norton's theory of alternating current –	
Achieving the theory of maximum possible power – transfer in alternating current circuits Comparison between ordinary and electronic voltmeters in measuring DC and AC voltages (multiple exercises)	the third
Measuring power using three voltmeters and three ammeters (multiple exercises)	Fourth
Measuring power and power factor using a wattmeter – – (multiple exercises)	Fifth
Improve power factor (multiple exercises) –	Sixth
Voltage and current in three-phase star-connected – circuits Voltage and current in three-phase current circuits – Triangle connections	Seventh
Measuring resistance using a Wheatstone bridge (multiple – (exercises	The eighth
Loaded voltage divider – Unloaded voltage divider –	Ninth
Measuring resistance using an ammeter and voltmeter (multiple (exercises	tenth
Using a micrometer to measure high value resistances (insulators) (multiple exercises)	eleventh
Increase the measuring range of the ammeter – Calibrating the ammeter using another device –	twelfth
Increase the measuring range of the voltmeter – Calibrating a voltmeter –	thirteenth
inductor circuitRL –	fourteenth
(RC) Time constant study of a capacitive circuit –	fifteenth

References and sources

1. Electrical Technology (Edward Hughes)
2. Basic Circuits (AMF Brooks) pergaman press
3.Introduction to Electrical Circuits (M Romanwitz) John Willy
4. Basic Electrical Engineering (Fitzgerald & Rlgginborthan)Mc-Graw-Hill

Principles of Electrical Engineering -5

Dr. Mohamed Zaki - Dr. Muzaffar Anwar Al-Naama

Circles and Measurements Book Project -6

Course Description

This course description provides a concise summary of the main characteristics of the course and the learning outcomes expected of the student, demonstrating whether he or she has made the most of the opportunities available in the programme.

Educational institution .133	Al-Huwayjah Technical Institute
Scientific Department / Center .134	Medical Equipment Maintenance Technology Department
Course Name/Code .135	Electronic**MDMT108**
Available attendance forms .136	My presence
Chapter/Year .137	Decisions
Number of study hours (total) .138	per semester 60=15*4
Date this description was prepared .139	2025-4-16
Course objectives .140	
Understanding simple mathematical laws and equations -1	

Understanding the main concepts and knowing the rules and laws used in −2
. analyzing electronic circuits and applying them in electronic circuits
.Introducing the student to electronic equipment −3
Preparing the student to study the various calculations in electronic circuits and −4
. to learn about the various theories for studying these calculations

Course outcomes, teaching, learning and assessment methods .141

A- Cognitive objectives

. During the academic year, the student learns the basics of electronic circuits1-

A2- The student learns about the parts of electronic circuits , how to read them, and the .factors affecting them

. A3- The student learns the types of connections used in circuits. Electronic

B. Course specific skill objectives

.B1 - Ability to design and conduct experiments, analyze and interpret data

.B2 - The ability to identify, formulate and solve problems

.B3- Mastery of the necessary mathematical, basic and engineering sciences

.work B4- The ability to use the techniques and skills required in the

C- Emotional and value goals

Student participation in class activities and submission of assignments on -10 .time

.Adherence to occupational safety rules while working in laboratories -11

Attention control and attention test (selective attention) -12

Teaching and learning methods

.Explanations and clarifications -13

.Scientific lessons -14

.Reports -15

.Student graduation projects -16

Evaluation methods

Theoretical tests -10

Practical tests -11

Reports -12

Teaching and learning methods

.Listen and pay attention to the teacher's explanation.10

.Knowing the role of science and scientists in life.11

.The student's interest in the quiet and cleanliness of the classroom.12

Units	Weekly hours			/ First level second semester	Language of :instruction Arabic	Name of the material Electronic
	M	A	N			
4	4	2	2			

Vocabulary details	The week
DC equivalent circuit of transistor – DC load line	the first
Application (Q-Point) Action Points – Rest Point Examples	the second
Transistor in small signal amplification – AC equivalent – circuit – Ideal approximation – Hybrid constants coefficients – Voltage gain (h) Equivalent circuit using Current gain – Power gain –	the third and Fourth
– Input and output resistors – Small signal amplifiers – Base market – Emitter market	Fifth
Use of transistor in voltage regulation – series regulator parallel regulator DC voltage source circuit –	Sixth
– its structure – (JEFT) Junction field effect transistor its symbol – the theory of operation – characteristics curves – the conductivity curve – definition of the narrow characteristics curves – (V_{GSOff}) ,(I_{DSS}) ,(V_P) voltage (E-MOSFET) – (D-MOSFET) – (MOSFET)	Seventh and The eighth

– Constant current source bias – (FET) Bias circuits (FET) Self-biased working point – Equivalent circuit of in small signal amplification (FET) Using	Ninth and tenth
MOSFET ,FET) (FET) Comparison between types of (BJT) And between (Transistor Structure and Characteristics – ItsIGBT Applications	eleventh and twelfth
Light Emitting Diode – (LDR) Light Dependent Resistor Photodiode Seven-Bit Circuit Board Its Structure and – Applications	thirteenth and fourteenth
Phototransistor – Structure – Operation – Practical Applications	fifteenth

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Vocabulary details	The week
Common emitter transistor properties	the first
Common Base Amplifier (Find Voltage Gain and Current (Gain	the second
Common emitter amplifier (find voltage gain and current gain) and plot frequency response curve	the third
Common collector amplifier (finding voltage gain and current gain) and plotting frequency response curve	Fourth
h-parameter.) Measurement of the hybrid coefficients .of the common emitter formula (	Fifth

h-parameter.) Measurement of the hybrid coefficients of the common base formula (	Sixth
h-parameter.) Measurement of the hybrid coefficients of the common sum formula (	Seventh
Use of transistor in voltage regulation circuits (series (regulator	The eighth
Properties (FET	Ninth
common source amplifier	tenth
Common Bank Amplifier	eleventh
Photodiode properties	twelfth
Application circuit for using photodiode	thirteenth
Properties of phototransistor	fourteenth
Application circuit for using phototransistor	fifteenth

Sources

1. Laboratory notebook
2. Principles of Electronics Translated by: Malvino
Badr Mohammed Ali Al Watar
Dr. Riad Kamal 1985
3. Electronics in the service of electrical applications Translation:
Dr. Samira Rustum 1978

Course Description Form

Computer principles

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether

the student has made the most of the learning opportunities available. It must be linked to the programme description.

Northern Technical University - Al-Huwayjah Technical Institute	Educational .142 institution
Medical Equipment Techniques	Scientific Department .143 Center /
(NTU102 Computer principles	Course Name/Code .144
My presence	Available attendance .145 forms
First year \ first semester	Chapter/Year .146
30	Number of study .147 hours (total)
2025-4-16	Date this description .148 was prepared
Course objectives .149	
Teaching the student about computer generations, their hardware and software its features, how to use it, the programsWindows operating system, components, the attached to it and how to benefit from them, as well as the concept of computer viruses and how to deal with them.	

Course outcomes, teaching, learning and assessment methods .150
A- Cognitive objectives
-26 Knowing the generations of computers
-27 Knowing the Windows computer operating system and how to use it
-28 Learn how to format floppy disks
-29 Knowledge of software usage
-30 Know how to access the Internet
-31 Know the concept of computer virus and how to get rid of it

. B - Course specific skill objectives **wimdos operating system Gain skill in using** -17 and scientificmedia player Skill in using auxiliary programs such as -18 calculator Gaining the skill of using applications such as programming languages -19 Internet access skill and knowledge of its features -20 Skill in getting rid of viruses that may infect the computer -21
Teaching and learning methods
Theoretical lectures -15 **Practical applications -16**
Evaluation methods
Theoretical test -27 **Practical test -28** **Reports -29**
C- Emotional and value-based goals **Increase the student's self-confidence -1** **Time management and not wasting it -2** **Increase the spirit of competition -3**
Teaching and learning methods
Giving lectures -16 **Practical applications -17** **Use of modern means (calculator and internet) -18**
Evaluation methods
Practical test -19 **Theoretical test -20**
transferable skills (other skills related to employability and personal development). **Ability to format hard disks -17** **Ability to print files -18** **Ability to use the Internet and communicate with society and institutions -19**

+ Paper test practical test	**Theoretical + lecture practical applications**	toRun option Benefit from the execute programs directly and help learn how to get the and its differentassistant .methods - Use entertainment programs Media player. such as in movie playbackWindow -) Take advantage of add-ons such as the (Accessories Calculator - Dealing with Paint create, saveto programs and retrieve drawings through the commands it .provides Word ,Note pad Dealing with	**Know how to run use the option and some additional programs**	**6**	**11-10-9**
+ Paper test practical test	**Theoretical + lecture practical applications**	: Software Types of programs : System software : Software application Programming languages and : computer programming	**Know the types of software**	**4**	**13-12**
+ Paper test practical test	**Theoretical + lecture practical applications**	Using the Internet and how to deal with it	**Internet knowledge**	**2**	**14**
+ Paper test practical test	**Theoretical + lecture practical applications**	computer The concept of ,how to get infected :viruses ,their types, how to treat them and how to deal with them anti-virus programs through available in the Windows . operating system environment	**Knowing the viruses that infect the computer**	**2**	**15**

Course structure .151

Chapter One

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Watches	The week
+ Paper test practical test	**Theoretical + lecture practical applications**	:Introduction to computers) generations, components (software andhardware	**Basic information**	**4**	**2 – 1**
+ Paper test practical test	**Theoretical + lecture practical applications**	: operating systemWindows Windows The concept of the its advantages, its basic ,system requirements, operating the system, components of the main the, screen of the desktop the method of ,icons concept of ,mouse activities dealing with the importance and components tostart using ,bar of the task enter programs, the concept of loaded tasks, exiting the system .and turning off the calculator The concept of a window for any program and identifying its main components, dealing with my ,my computer ,Recycle bin Documents	**Windows operating system**	**6**	**5-4-3**
+ Paper test practical test	**Theoretical + lecture practical applications**	Format floppy disks, copy folders and files, use cut and paste and learn properties of .disks, folders and files Panel Benefit from Control mouse such as the :programs how to ,display icon the ,icon ,change the library background control the screen saver, change the appearance of the window menus and their colors, the inadd ,Remove prog. icon adding and deleting programs	**Formatting floppy disks and using control programs**	**6**	**8-7-6**

Infrastructure .152 **Classrooms -11** **Computer lab -12**	
Curriculum Development Plan .153 **Textbook update -9** **Laboratory development and scientific vocabulary increase -10**	
Required textbooks -1	**Computer Basics for Beginners**
Main references (sources) -2	**Computer and ready–made software**
A- Recommended books and ,references (scientific journals (.reports, etc	**/http://iajet.org**
...B - Electronic references, websites	https://isindexing.com/isi/journaldetails.php?id=8735