Ministry of Higher Education & Scientific Research

Supervision and Scientific Evaluation Directorate

Quality Assurance and Academic Accreditation

International Accreditation Dept.

Guide to Course Descriptions and Academic Programs for

2024 -2025

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Academic Program Specification Form for The Academic Year 2024-2025

University: Northern Technical University

Faculty/Institute: Al-dour Technical Institute

Department: **Medical Instruments Techniques Department**

Name of the academic or professional program: Technical diploma in medical instruments

Name of the final certificate: Technical diploma in Medical Instruments Techniques

Academic system: Curriculum system

File preparation date : 27/1/2025

File filling date: 27/1/2025

Signature

The name of the head of the department

Dr. Asmaa Muneam Abdullah

Signature

Dean's Assistant For Scientific Affairs

Assist. Prof. Dr. Hanan Shahb Ahmad

Check the file by

Quality Assurance and University Performance Division

Name of the director of the Quality Assurance and University Performance Division:

Signature

Asst. Lecturer Hayder Ali Mohssn

Dean's endorsement

Assist. Prof. Dr. Maha Elttayef Jasim

Vision of program
The Department of Medical Instruments Techniques represents an effective means of meeting the community's need for specialized services in supporting various health, research and educational institutions, in addition to investing the teaching Staff and students in primary and higher theoretical and applied scientific research and studies, as well as education, awareness and health and scientific mobilizationWithin future foundation in line with modern developments. to acquire high technical and professional expertise and harness it scientifically according to a systematic perspective
Program message
A Department of Medical Instruments Techniques was established in accordance with the community's need for specialized service cadres with scientific specifications and modern technical standards, and prepare these cadres to work in important health and research institutions, as well as support the private sector , knowing that the department has a clear future mission with high ambition that seeks to provide the best services and develop the teaching and student staff in the fields of scientific and cognitive research and open postgraduate studies for the university's specialized credit, as well as community services and expanding the horizons of scientific cooperation with relevant corresponding departments in order to achieve integration.
Program Goals
The department aims to graduate technicians who have the ability to deal with medical devices of various types in terms of their installation, operation, maintenance, and all their applications and programs.
Program accreditation
No accreditation program
External influences
No external influences

Program structure				
Program structure	**Number of courses**	**Study unit**	**Percentage**	**Notes***
Foundation requirements	**Enterprise requirements**	10	20	18.5%
Institute requirements	**College requirements**	3	7	6.5%
Department requirements	**Department requirements**	26	81	75%
Summer training	**summer training**	Yes		
Others	**Other**			

Program description				
stage Scholarship	name The decision	Code The decision	hours Approved	
			Theoretical	practical
level one				
First level - first semester	English Language 1	NTU 101	2	-
	Principles of Computer	NTU 102	1	1
	Foundations of Mathematics	TIDO 100	2	-
	Mechanical Workshop	TIDO 101	-	3
	DC Electrical Circuits	MDDI100	2	2
	Electronic Principles	MDDI101	2	2
	Digital Circuit Principles	MDDI102	2	2
	Electrical Workshop	MDDI104	-	2
	Physiology	MDDI103	2	-
	Engineering Drawing	MDDI110	-	2
First level - second semester	Arabic Language	NTU 103	2	-
	Sport	NTU 104	1	1
	Human Rights Democracy	NTU 100	2	-
	Calculus	TIDO 102	2	-

	Electrical drawing	MDDI105	-	2
	Electronics Workshop	MDDI106	-	2
	AC Electrical Circuit	MDDI107	2	2
	Electronic	MDDI108	2	2
	Digital Circuit	MDDI109	2	2
Second Level				
The second level - the first semester	The Crimes Of The Baath Regime In Iraq	NTU 203	2	-
	English Language 2	NTU 200	2	-
	Electronic Circuit (1)	MDDI201	2	2
	Microcomputer (1)	MDDI202	2	2
	Electronical Medical Instruments 1	MDDI203	2	2
	Medical Instruments Maintenance workshop 1	MDDI204	-	2
	Project 1	MDDI205	-	2
	Electro-mechanical Medical Instruments	MDDI206	2	2
	Control	MDDI212	2	2
	Renewable energy systems	MDDI214	1	2
The second level - the second semester	Computer	NTU 201	1	1
	Arabic Language	NTU 202	2	-
	Professional Ethics	NTU 204	2	-
	Measurements	MDDI200	2	2

	Devices			
	Electronic Circuit (2)	MDDI207	2	2
	Microcomputer (2)	MDDI208	2	2
	Electronical Medical Instruments 2	MDDI209	2	2
	Medical Instruments Maintenance workshop 2	MDDI210	-	2
	Project 2	MDDI211	-	2
	Renewable energy systems	MDDI213	1	2

Expected learning outcomes of the program
Knowledge
A-1 Preparing and graduating a technical cadre that fulfills the main technical and cognitive requirements to be a high-quality technical and artistic resource in the field of medical devices
The ability to classify medical devices, how they work, diagnose them, and their A-2 risks
A-3 Cooperating with doctors and health institutions to provide the necessary technical support to operate medical devices correctly and effectively
A-4 The ability to write technical reports on the results of examining medical devices and the ability to draw conclusions and their effects
Skills
B-1 Installing and operating various electronic and electromechanical medical devices, both diagnostic and therapeutic
B-2 Scheduling and programming periodic maintenance work
Contributing and supervising the maintenance and calibration of various medical B-3 devices.

B-4 Designing, developing and finding replacement parts for some broken units of medical devices
Values
C-1 Compliance with sanitary and technical standards and regulations applied in the medical process, ensuring patient safety and effectiveness of treatment C-2 The ability to develop oneself and update information in the field of specialization and in the long term Optimal use of all possible means to keep pace with the modernity of the specialty C-3 C-4 Continuous research and development in the field of engineering medical device techniques, and improving the performance, efficiency and general safety of medical devices

Teaching and learning strategies						
((Theoretical lectures / discussion and dialogue / practical lectures / field visits / discussion circles / laboratories / office activities / solving examples / graduation project / summer training))						
Evaluation methods						
((Oral and written exams/observation and cumulative record))						
Education Institution						
Faculty members						
Academic Degree	**Specialization**		**Special requirements/skills**		**Faculty members**	
	Major	**Specialization**			**Staff**	**Lecturer**
lecturer	Physics Scienc	Solid state physics			staff	

	e					
assistant teacher	Electricity Engineering	Electrical and computer Engineering			Staff	
Assistant Professor	Medical Instruments Engineering	Medical Instruments Engineering			Staff	
lecturer	Mechanical engineering	Applied mechanic			Staff	
Asst. lecturer	Computer	computer				

Professional development
Directing new faculty members to follow up on the annual updates of the study plan and the necessity of updating the curricula in a manner consistent with the plan announced by the scientific department
Professional development for faculty members
Conducting field visits to the public and private sectors and universities within the specialty to review the field development in the field of specialization Involving students in discussions, scientific seminars and training courses
Acceptance standard
The admission criteria for morning study are within the central admission plan, which is approved by the Ministry of Higher Education and Scientific Research.

The most important sources of information about the program
Programs and resources are approved by the sectoral committees and are periodically updated through the annual meetings of the relevant committees
Program development plan
Using new concepts and modern methods in the maintenance and calibration of various medical devices through the participation of specialized professors in the scientific department in scientific workshops, seminars, and twinning work with the hospitals specializing

Program skills chart																
				Learning outcomes required from the program												
Year / Level	Code of course	Name of course	Basic or Optional	Knowledge				Skills				Values				
				1A	2A	3A	4A	1B	2B	3B	4B	1C	2C	3C	4C	
First Level	NTU100	Human Rights Democracy	Basic	X	X	X		X	X	X	X	X	X	X		
	NTU101	English Language 1	Basic	X	X	X	X	X	X			X	X			
	NTU102	Principles of Computer	Basic	X	X	X			X	X	X	X	X			
	NTU103	Arabic Language	Basic		X	X	X	X	X	X	X	X	X		X	
	NTU104	Sport	My choice		X			X	X	X	X	X	X			
	TIDO100	Foundations of Mathematics	Basic	X	X		X	X	X		X	X	X			
	TIDO101	Mechanical Workshop	Basic	X	X			X	X		X	X	X			

	TIDO101	**Calculus**	**Basic**	X	X	X			X	X	X	X	X		X
	MDDI100	**DC Electrical Circuits**	**Basic**	X	X	X	X	X	X			X	X		X
	Electronic Principles	**MDDI101**	**Basic**	X	X		X	X	X	X	X	X	X		X
	MDDI102	**Digital Circuit Principles**	**Basic**	X	X	X	X	X	X	X	X	X	X	X	X
	MDDI103	**Physiology**	**Basic**	X	X	X		X	X	X		X	X		X
	MDDI104	**Electrical Workshop**	**Basic**	X	X	X	X	X	X	X		X	X	X	
	MDDI105	**Electrical drawing**	**Basic**	X	X	X		X		X		X	X	X	X
	MDDI106	**Electronics Workshop**	**Basic**	X	X	X	X	X	X	X	X	X	X	X	
	MDDI107	**AC Electrical Circuit**	**Basic**	X	X	X		X	X	X	X	X	X	X	
	MDDI108	**Electronic**	**Basic**	X	X	X		X	X	X	X	X	X	X	
	MDDI109	**Digital Circuit**	**Basic**	X	X	X		X	X	X	X	X	X	X	

	MDDI110	**Engineering Drawing**	**Basic**	X	X	X		X	X	X		X	X	X	X
Second level	**NTU200**	**English Language 2**	**Basic**	X	X	X		X	X	X		X	X	X	X
	NTU201	**Computer**	**Basic**	X	X	X		X	X	X		X	X	X	X
	NTU202	**Arabic Language**	**Basic**		X	X		X	X	X	X	X	X		X
	NTU203	**The Crimes Of The Baath Regime In Iraq**	**Basic**		X			X	X	X		X	X	X	
	NTU204	**Professional Ethics**	**Basic**		X	X	X		X	X	X	X	X		X
	MDDI200	**Measurements Devices**	**Basic**	X	X	X	X	X	X	X		X	X	X	
	MDDI201	**Electronic Circuit (1)**	**Basic**	X	X	X		X	X	X		X	X	X	
	MDDI202	**Microcomputer (1)**	**Basic**	X	X	X		X	X	X		X	X	X	
	MDDI203	**Electronical Medical Instruments 1**	**Basic**	X	X	X		X	X	X		X	X	X	
	MDDI204	**Medical Instruments Maintenance workshop 1**	**Basic**	X	X	X		X	X	X		X	X	X	

	MDDI205	**Project 1**	**Basic**	X	X	X	X	X	X	X	X	X	X	X	
	MDDI206	**Electro-mechanical Medical Instruments**	**Basic**	X	X	X	X	X	X	X		X	X	X	
	MDDI207	**Electronic Circuit (2)**	**Basic**	X	X	X		X	X	X		X	X	X	X
	MDDI208	**Microcomputer (2)**	**Basic**	X	X	X		X	X	X		X	X	X	X
	MDDI209	**Electronical Medical Instruments 2**	**Basic**	X	X	X		X	X	X		X	X	X	X
	MDDI210	**Medical Instruments Maintenance workshop2**	**Basic**	X	X	X		X	X	X	X	X	X	X	X
	MDDI211	**Project 2**	**Basic**	X	X	X		X	X	X	X	X	X	X	
	MDDI212	**Control**	**Basic**	X	X	X		X	X	X	X	X	X	X	
	MDDI213	**Programmable Logic Controller (PLC)**	**Basic**	X	X	X		X	X	X		X	X	X	
	MDDI214	**Renewable energy systems**	**My choice**	X	X	X		X	X	X		X	X	X	