Ministry of Higher Education
and Scientific Research
Scientific Supervision and
Evaluation Authority
Department of Quality
Assurance and Academic
Accreditation

Academic program description form for colleges and institutes

University: Northern Technical

Scientific Department: Electronic Technologies

Signature:

Department head name:

AbdulRafa Hosuen Maray

Date: 8/1/2024

Signature :

Scientific Associate Name:

Dr. Raghad Ghalib Alsultan

Date: 8/1/2024

The file has already been checked

Quality Assurance and University Performance Division

Name of the Director of the Quality Assurance and University Performance Division: Mohamed Khaled Youssef

Date: 9/1/2024

Signature

Dean's endorsement

Academic Program Description

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

1. Educational Institution	**Northern Technical University**
2.Scientific Department/Centre	**Electronic Technologies Department /Mosul Technical Institute**
3. The name of the academic or professional program	**Department of Electronic Technologies**
4. The name of the final certificate	**Technical diploma**
5. Academic system:	**/ Courses /**
6. Accreditation Program	**ABET**
7. Other external influences	**There is a close relationship with the labour market (public and private sectors) through communication with official and semi-official departments, focusing on the needs required in those departments, where the curricula are updated accordingly.**
8. Description preparation date	**7/1/2024**
9. Academic Program Objectives	

The Department of Electronic Technologies, with its four branches (electronics, computer technology, control device technology, and medical device technology), aims to graduate specialized technical cadres in the fields of electronics, communications, computers, various control systems, devices and medical equipment, and knowledge of dealing with electronic devices and modern communication devices and controlling them, as well as computers of various types and how. Installing, programming, operating and then maintaining them, as well as installing, operating and maintaining various types of medical devices and equipment.

Providing basic knowledge in the principles of electronic and computer technologies through the design and implementation of laboratory projects in addition to the ability to connect computer networks, address problems that occur and carry out **Adjusting medical devices according to the required standards**
Provide broad attention to problems that arise in professional practice including teamwork, occupational safety, public morals, and economics
Qualifying the graduate to be able to keep pace with the rapid development in the field of electronics, communications and programs **Computers of all kinds and development in the field of medical devices and laboratory testing devices**
Preparing the graduate to be successful in completing his scientific career by obtaining the highest certificates

10. Required program outcomes and methods of teaching, learning and assessment .1
A1- Providing the graduate with the necessary knowledge to manage electronic systems of all kinds and types and how to deal with them and use them optimally. **A2 - Providing the graduate with the necessary knowledge to manage computer systems and how to deal with their hard materials and their installation.** **A3 - Providing the graduate with basic information in the field of computer specialization, starting with choosing the most appropriate devices, passing through the basics of operation, to assembly and maintenance, both software and electronic physical.**

A4 - Providing the graduate with the necessary knowledge to manage control and control systems, knowledge of industrial automation systems and ways to deal with modern devices and machines.
A 5 - Preparing the graduate to be ready to enter the field of the labor market and enabling him to understand scientific developments in the field of computers, networks and modern electronic devices, in addition to preparing him to deal with the modern machine and the advanced and rapidly developing technology.

A 6- Preparing the graduate to be able to use the various electronic examination devices in his field of specialization

B - Skills objectives of the program

B 1 - Providing the graduate with the necessary information about electronic components manufactured from semiconductors of different types, how they are manufactured, their basic properties, the function of each electronic component and the methods of their installation in various electronic circuits.
B 2 - Knowing the methods of examining electronic components and how to obtain basic electrical signals, as well as their practical applications in various household and personal devices such as modern communication devices, satellite receivers, and audio-visual devices.
B 3 - Preparing the graduate to be able to solve technical problems in the fields of electronics, communications, computers and various medical devices and how to perform periodic maintenance for them and analyze the causes of their malfunctions and ways to overcome them.
B 4 - Provide the graduate with the initial skills necessary to design simple practical electronic circuits using microcontrollers and programmable logic controllers and how to connect the machine to the computer and control it

Teaching and learning methods

1 Theoretical lectures .
2. Practical lectures (laboratories).
3. Workshops of all kinds.
. 4.Audio and visual aids
5. Scientific films.
6. Scientific field visits.
. 7.Summer training

Evaluation methods

- **Rapid daily tests (oral and written)**
- **Semester and final exams**
- **Homework**
- **Daily or weekly operational reports**
- **Immediate evaluation of performance in workshops and laboratories**
- **Seminars**
- **Performing a unique extracurricular activity**
- **8. Discussing graduation projects**

C- Emotional and value goals

C1- He has academic and technical information, experience and skill in the field of hardware and software technology.

C2- It can keep pace with the rapid development in the field of modern electronic devices, including medical, communications, control systems, computers, their systems and all their networks.

C 3 - be able to manage, prepare and implement periodic programs for maintenance, maintenance and development

C4- He has knowledge and knowledge of how to install, operate and check practical electronic circuits

C 5- He has the mental ability to set up and program transmitters and receivers and cameras of all kinds.

C6 He has full knowledge and awareness of everything that is new and advanced in the science of medical devices of all kinds and its uses

Teaching and learning methods

1 - theoretical lectures

2-- Scientific discussion in the classroom

3 - Small group method

4 -Conducting practical experiments in laboratories

5 - Seminars and presentation of the latest scientific developments globally by students

6- Preparing graduation projects for students of the completed stage

7- Scientific trips to real work sites and see the most important problems and applications in the field of technology Electronics of all kinds

8-. Scientific films and other illustrations

9-. Practicing summer training in government departments, laboratories and companies.

10-Curriculum books, office paper external sources, and electronic scientific resources

Evaluation methods

Quick daily exams, homework, quarterly and final exams, follow-up of scientific activities, daily or weekly practical reports, direct evaluations of performance in workshops and laboratories, annual evaluations of classroom and extracurricular performance, in addition to discussing graduation projects.

d- General and rehabilitative skills transferred (other skills related to employability and personal development

D1- Learn engineering and electrical drawings using the calculator (Auto CAD).

D2 - Learn to reformat computers and install their own software.

D 3-Help in solving mathematical problems

D 4- Gaining experiences that qualify them to deal with the necessities of life, including experience in the field of carpentry

Turning, welding, etc., while taking the required professional safety measures.

Teaching and learning methods

Lectures, laboratories, workshops, scientific field visits, graduation projects and summer training

Evaluation methods

Oral and written exams, semester exams, final exams, practical reports, assignments Homework, daily assessment, and follow-up of scientific activities

11. Program structure

Credit hours		Course or course name	Course or course code	Academic level
practical	theory			First course
2	2	Principles of electronics	ETEC100	First
2	2	electronic	ETEC105	Second
				Second course
2	2	audio and video1	ETEC205	First
2	2	audio and video2	ETEC211	Second

12.Personal development planning .2
● **educational supervision** ● **seminars** ● **summer training** ● **scientific trips** ● **seminars** ● **Participation in scientific exhibitions** **7 Participation in cultural festivals, sports and scientific competitions**
13.Admission criterion (setting regulations related to joining the college or institute)
● **Average** ● **Desire** ● **The corresponding specialization in vocational prep**
14.The most important sources of information about the program .3
1- Accreditation Program (ABET). **2- Sect oral and advisory groups** **3- The department's development plan** **4- Scientific experience in the field of education and practical experience inside and outside education.** -1

Curriculum Skills Outline																		
Please check the boxes corresponding to the individual learning outcomes from the program being evaluated																		
Learning outcomes required from the program																		
Transferred general and qualification skills (other skills related to employability and personal development)				Emotional and value goals				Program specific objectives				Cognitive goals				Basic mother optional	Course Name	Course Code	level
d4	d3	d2	d1	c4	3c	c2	c1	b4	b3	b2	b1	4a	a3	a2	a1				First
√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	basic	Principles of electronics	ETEC100	First semester
√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	basic	electronic	ETEC105	Second semester
																			second
√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	basic	Audio and visual devices1	ETEC205	First semester

√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	**basic**	Audio and visual devices2	ETEC211	**Second semester**

course description form

course description

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

1. Northern Technical University	1. Educational Institution .1
Department of Electronic Technologies/Mosul Technical Institute	2. Scientific Department / Center .2
Audio and video equipment	3. Course name/code .3
theoretical + practical	4. Forms of attendance available .4
annual	5. Semester/year .5
4 hours/week x 30 weeks = 120 hours (theoretical and practical)	6. Number of hours of study (total) .6
6 / 6 / 2021	7. Date of preparation of this description .7
. 8. Course objectives	
a. Teaching the student the basics and theories of broadcasting the television signal while providing him with a comprehensive idea of broadcasting and transmission systems The reception and the stages of the future, in addition to providing him with information about the video recording.	

b Preparing technical cadres capable of dealing with satellite transmission and receiving systems and maintaining their equipment.
Prepare technical cadres in the field of electronics to be informed of the most important scientific and technological developments And seeking to benefit from them in community service and to develop teamwork skills for students and graduates
Striving to graduate technicians with the ability to be creative and innovative in various fields of technical work after their graduation Keeping abreast of scientific and technological development in the civilized world
e. Graduating technical cadres in the field of electronics capable of facing all the difficulties and obstacles that It encounters while working in the industrial and technological sectors by arming it with all the information And the basics and scientific facts that he needs in his field of work in the field of electronic technologies
.

. 10- Course outcomes and methods of teaching, learning and assessment

A- Cognitive goals A1- Knowing the electronic components of a television set A2- Knowing the block diagram of the television set and international television broadcasting systems. A3- Knowing the basic stages of the device A4- Knowing the basics and theories of broadcasting the television signal A 5- Knowledge of broadcasting, transmitting and receiving systems A6- Giving a simplified idea of video recording devices A 7- Knowing how the signals are examined and processed by the television set.
B- Skills objectives of the course. B1 - Knowing the electronic components of a television set B2 - To be able to read block diagrams and electronic maps for TVs and others B3 - Enable him to distinguish the different stages of the device

B-4 Enable him to examine and see the video signals and hear the audio signals of the television.

B 5- The graduate can maintain audio-visual equipment of all kinds and forms.

Teaching and learning methods

1Theoretical lectures
2- Scientific discussion in the classroom
3- Small group method
4- Conducting practical experiments in laboratories
5- Seminars and presentation of the latest scientific developments worldwide by students
6- Scientific films and other illustrations
7- Systematic training
8- Summer training

Evaluation methods

- Oral and written exams
- Semester and final exams
- Operational reports
- Homework
- Daily assessment

C- Emotional and value goals

C1- He has academic and technical information, experience and skill in the field of audio-visual devices and systems Communication of all kinds.

C2- It can keep pace with the rapid development in the field of modern electronic devices and communications

C 3 - He is able to manage, prepare and implement periodic programs for maintenance and maintenance of modern communication devices, especially televisions and audio devices.

C4- He has the mental ability to set up and program transmitters and receivers and cameras of all kinds .

Teaching and learning methods

1-Theoretical lectures
2- Scientific discussion in the classroom
3- Small group method
4- Conducting practical experiments in laboratories
5- Seminars and presentation of the latest scientific developments worldwide by students
6- Scientific films and other illustrations
7- Systematic training

Summer training-8

Evaluation methods

- Oral and written exams
- Semester and final exams
- Operational reports
- Homework
- Daily assessment

D- Transferred general and qualifying skills (other skills related to employability and personal development).
D1 Gain experiences that qualify them to deal with the necessities of life, including experience in the field of maintenance
Electronic devices, wired and wireless transmitters and receivers.
D2- Gaining experience that qualifies them to deal with electronic circuits and their components such as diode and transistor
D3- Gaining experience in reverse engineering of electronic maps
D4- Acquire the necessary skills to identify and repair faults and maintain various electronic devices

10-Course Structure

Evaluation method	education method	Unit name and/or topic	Required learning outcomes	hours	the week
Short daily exams, homework, quarterly	theoretical lectures	How to use the measuring devices used	Use of measuring devices	2	the first

and final exams	and scientific discussion Showing scientific films and the latest developments and clarifications	in the audio lab			
=	=	Identify the stages of the TV set (read the map) and project the points on the TV set	Knowing the stages of television and reading the map	2	The second
Short daily exams, homework, quarterly and final exams	theoretical lectures and scientific discussion Showing scientific films and the latest developments and clarifications	The power supply stage (measuring the supply voltage to operate the TV - how to convert it from AC to DC - drawing signals at the check points using the oscilloscope - measuring the input voltage of the oscillator - measuring the output voltages from the power supply - drawing the signals leaving	The ability to distinguish the phase of the power supply and measure its input and output voltages and signals by means of the CRO	8	The third, fourth, fifth, and sixth

		the stage using an oscilloscope			
=	=	Horizontal deflection phase Measurement of the inlet and outlet voltages of a phase	The ability to distinguish the horizontal deflection phase and measure its input and output voltages	4	Seven and eight
=	=	Vertical deviation phase Measurement of the voltages entering and leaving the phase	The ability to distinguish the vertical deflection phase and measure its input and output voltages	4	ninth and tenth
=	=	Plotting the incoming and outgoing signals of the horizontal and vertical phase using an oscilloscope	The possibility of measuring the incoming and outgoing signals for the horizontal and vertical deflection stages using the CRO . oscilloscope	4	eleventh and twelfth
=	=	Making the RF stage for the stage and measuring the input voltages while drawing the	Recognizing the operation of the RF stage and the possibility of measuring voltages and incoming signals	2	Thirteenth

		input signals using the oscilloscope			
=	=	Making the RF stage of the stage and measuring the output voltages while drawing the outgoing signals using the oscilloscope	Possibility to measure the voltages and output signals of the RF stage with the CRO	2	fourteenth
Short daily exams, homework, quarterly and final exams	theoretical lectures and scientific discussion Showing scientific films and the latest developments and clarifications	Making the stage IF)) for the stage and measuring the input voltages while drawing the input signals using the oscilloscope device	Recognizing the work of the intermediate frequency stage (IF) and the possibility of measuring voltages and incoming signals	2	Fifteenth
Evaluation method	**education method**	**Unit name and/or topic**	**Required learning outcomes**	**hours**	**the week**
Short daily exams, homework, quarterly and final exams	Theoretical lectures and scientific	Making the stage (IF) for the stage and measuring the output	identifying the work of the intermediate frequencies stage (IF) and the possibility	2	the first

	discussion Showing scientific films and the latest developments and clarifications	voltages with drawing the outgoing signals using the oscilloscope device	of measuring voltages and outgoing signals with a CRO oscilloscope device		
=	=	The work of the AGC stage of the stage and the measurement of the input voltages with the drawing of the input signals using a signal oscillator	Identification of the AGC phase and the ability to measure the input voltages as well as the signals	2	The second
=	=	Making the stage of the AGC)) for the stage and measuring the output voltages with drawing the input signals using the oscilloscope device	Possibility to measure the input voltages as well as the signals for the AGC phase))	2	The third,
=	=	The stage of the image	The possibility of identifying the stage of	4	fourth,

		control operations, measuring the input processing voltages and drawing the signals entering the stage using the oscilloscope	controlling the image, measuring the input voltages, and drawing the signals entering the stage		
=	=	The stage of the image control operations, measuring the processing voltages for the output and drawing the outgoing signals for the stage using an oscilloscope	Measure the output voltages of the image control stage and plot the output signals of the stage	4	fifth,
=	=	Audio stage Measurement of input and output processing voltages with drawing of signals using	The ability to distinguish the sound phase and measure the input and output processing voltages with drawing signals	4	sixth

		an oscilloscope			
=	=	Color amplifiers Measure input and output processing voltages and plot signals using an oscilloscope	The ability to distinguish the stage of color amplifiers and measure the input and output supply voltages with drawing signals	4	Seven
=	=	How to control the intensity of illumination Measuring the input and output processing voltages with drawing signals using an oscilloscope	Knowing how to control the intensity of lighting and then the possibility of measuring input and output processing voltages with drawing signals	4	Eight nine
Short daily exams, homework, quarterly and final exams	Theoretical lectures and scientific discussion Showing scientific films and the latest developm	Familiarize yourself with modern devices and keep pace with the development in them in terms of installation	Familiarize yourself with modern devices and keep pace with the developments in them	4	Ten and elaven

	ents and clarificati ons				

12. Infrastructure.10	
Audio-visual equipment / Die Mahdi Fares - Rachis Coqui Murad.	Required course books -1
	2 main references (sources)
boylestad electronic devices and circuit theory 11th edition Floyd electronic devices - 9th edition	Recommended books and references (scientific journals, reports,)
Technical Institute website / Mosul Grants Pass TV Repair ifixit family handyman	B - Electronic references,

13. Course Development Plan.11
1- Curriculum development -1 2- Development of laboratories -2 3- Continuing education courses -3 4- Showing scientific films -4 5- Organizing scientific visits -5 6- Organizing seminars -6