Republic of Iraq
Ministry of higher education & scientific research
Supervision and scientific evaluation directorate
Quality assurance and academic accreditation

Academic Program Specification Form For The Academic

University : Northern Technical University
College or Institute: Kirkuk Technical Institute
Department: Electronic Techniques
Date of form completion: 14/1/2024

Assit.Prof. Dr. : Ashty Mahdi Aarif	Dr. Sawash shaheen	assist. Prof. Dr. Ali: Najdat
Dean`s Name	Dean`s Assistant for Scientific Affairs	Head of Department
Date: 14/1/2029	Date: 11/1/2024	Date: 11/1/2024
Signature ashty	Signature	Signature

Assis. Prof. Zuhair shakor
Quality Assurance and University performance manager

Date: 14/1/2024
Signature

Academic Program Description

Academic Program Description

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

Name of university	Northern Technical university
Name of Department	Electronics techniques
Name of academic program	Electronics techniques
Name of Final certificate	Technical Diploma / Study period is two calendar years equivalent to three academic years
Study system	Courses /semester
Accredited Academic Program	ABET
Other external influences	1-There Is A Close Relationship Between The Department's Output And The Labor Market, And A Market Opinion Is Taken To Create Curriculum Study . 2-Continuous Follow-Up Of The Curricula Of Industry Prep For The Purpose Of Matching Its Outputs To Fit The Continuity Of The Vocabulary Of The Section
Description creation date	30/5/2021
9- Academic Program Objectives:	

1- Preparing technical staff with high skills in the field of electronics capable of dealing with variables
2- Enhancing the values of job affiliation and loyalty in the organization
3- make a Bridge between traditional and modern scientific and training curricula to serve the current reality
4- Enhancing the concepts of qualitative and quantitative excellence in order to achieve quality standards and scientific efficiency
5- Create a scientific, research and applied environment that serves business organizations and find solutions to their problems
6- Evaluating and developing the effectiveness of the annual educational and training programs to achieve better development
7- Taking care of students and putting them on the right path that expresses their personal and professional aims and aspirations
10- Required program outcomes and methods of teaching, learning and assessment
A- Cognitive aims A1- Electronics and electronic circuits A2- Digital circuits and microprocessors A3- Electrical circuits and measurements A4- Communication A 5- Audio-visual equipment A6- Electronic measuring devices
b- The skill objectives of the program
The topic aims to graduate qualified cadres to work in the operation, maintenance and construction : B1 - The various electronic circuits on the printed board and how to check and test them B 2 - different measuring devices. B3 - Radio, television and telephone systems and systems.
11-Teaching and learning methods
The following methods are followed Theoretical lecture (with various means of explanation) By using Google class room and YouTube and Different teaching method and others , practical lecture (with various means of explanation), workshops (with various means of explanation), presentation of scientific films, seminars for students, student research, scientific reports, scientific visits, summer training.
Evaluation methods The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams

during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam in turn
C- Emotional and value aims C1- Identify and implement the applied circuits of some components. C2 - Teaching the student the basics of logical circuits in electronic computers, how they work, and writing and implementing programs in assembly language for microprocessors. C3- Training the student on the use of laboratory electrical devices for various measurements, which he can practice in his working life. C4- Building practical electronic circuits C5 - The student acquires the skill in the field of electronic device maintenance, equipment malfunctions and applied circuits, by teaching the student the methods used in maintenance and the importance of components, then training the student with practical experiences on the malfunctions of various electronic devices.
d- Transferred general and rehabilitative skills (other skills related to employability and personal development) D1- Welding D 2- Plumbing D 3- Turning D 4- The refrigerator D 5- Search on the Internet
Teaching and learning methods Lecture style, workshop, computer simulation, summer training
Evaluation methods The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam in turn
11-program structure

Educational level	Subject or course code	Name of department	Credit hours	
		Electronics department	Practice	Theoretic
First level			15	15

Second level			15	22

12-Planning for personal development
Specialized courses, scientific symposium, seminars, scientific developments, research, scientific conferences
13- Acceptance standard (setting regulations related to college or institute enrollment) 1)The total degree that the student obtained after passing the general exams for the sixth . 2) To be a graduate of the scientific or industrial branch (specializing in electronics or computer maintenance and assembly). 3) The results of the medical examination that the student is healthy and fit to study in the department. 4)-Desire
14-The most important references of information about the program
1- Basics of Electronics, translated by Badr Muhammad - Dr. Riyad Kamal Al-Hakim 2- Principles of Digital, / Digital Electronics and Its Applications ((Author: Malvino)). 3-Principles of Electrical Engineering (Dr. Muhammad Zaki - Dr. Muzaffar - Anwar Al-Neama)

COURSE DESCRIPTION FORM

1-Description Course : digital Circuits (first class)

2- Study of the composition, properties and use of digital components in the design of digital circuits

3-Study of applications and analysis of digital circuits

4-Study of numerical systems and their applications

5-Study of gates and all kinds

6-An idea about flip-flop

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.

Name of university	Northern Technical university
Name of Department	Electronics techniques
Name of subject	digital circuits
Available forms of attendance	by theoretical and practical by attendance according
Course/year	15 weeks
Total number of hours of study	60hours in the year (2 hours in week)
Description creation date	13/9/2023
9- Academic Program Objectives:	

Study of applications and analysis of digital circuits
Study of numerical systems and their applications
Study of gates and all kinds
An idea about flip-flop

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

A- Cognitive aims

A1- Learn about the different digital circuits

A2- Take advantage of these circuits in designing digital projects

A3- Maintenance and repair of various digital circuits

b- Subject-specific skill objectives

B1 - Introducing the student to basic digital circuits, ways of designing and using them in many practical applications.

B2 - digital components manufactured

Giving the student an idea of flip-flop

10-Teaching and learning methods

The theoretical lecture (with various means of explanation), power point, the practical lecture (with various means of explanation), scientific reports. different teaching method . Department's YouTube.

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

Emotional and value aims

A1- Identify and implement the applied circuits of some components

A2 - Teaching the student the basics of logical circuits in electronic computers, how they work, and writing and implementing programs in assembly language for microprocessors

A- Training the student on the use of laboratory digital devices for various measurements, which he can practice in his working life

A4- Building practical digital circuits

with practical experiences on the malfunctions of various electronic devices

B- Transferred general and rehabilitative skills (other skills related to employability and personal development)

Teaching and learning methods
Lecture style, workshop, computer simulation, summer training
Evaluation methods
The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

11- structure of subject

weeks	hours	Required learning outcomes	name / course or topic	education method	Evaluation method
weekly	5	Digital circuits	Electronics department	Theoretical + practical	oral exams

12-Infrastructure	
1-Required references books	1-Principles of digital circuits book, - written by I.P. Malvino,
2- Main References (Sources)	.
A- Recommended books and references (scientific journals, reports)	1-The virtual library of the Ministry of Higher Education and Scientific Research

13- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course

COURSE DESCRIPTION FORM

1-Description Course: electrical Circuits (first class)

2- Study of the ohm's law, properties and measuring of resistance

3-Study of many kinds of connections and how can solve it like star-delta converting and kershoph's law

4-Study of depending current source and depending voltage source

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.

Name of university	Northern Technical university
Name of Department	Electronics techniques
Name of subject	Electrical circuits
Available forms of attendance	theoretical and practical by attendance
Course/year	15 weeks
Total number of hours of study	60 hours in the year 2 hours in week)
Description creation date	2023/9/13
9- Academic Program Objectives: 1-Study of the ohm's law, properties and measuring of resistance 2-Study of many kinds of connections and how can solve it like star-delta converting and kershoph's law	

3-Study of depending current source and depending voltage source

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

A- Cognitive aims

A1- Learn about the different electrical circuits

A2- Take advantage of these circuits in designing electrical projects

A3- Maintenance and repair of various electrical circuits

b- Subject-specific skill objectives

B1 - Introducing the student to basic electrical circuits, ways of designing and using them in many practical applications.

B2 – electrical components manufactured from semiconductors of different types - composition - properties

10-Teaching and learning methods

The theoretical lecture (with various means of explanation), power point, the practical lecture (with various means of explanation), scientific reports. different teaching method . Department's YouTube.

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

Emotional and value aims

A1- Identify and implement the applied circuits of some components

A2 - Teaching the student the basics of logical circuits in electronic computers, how they work, and writing and implementing programs in assembly language for microprocessors

A- Training the student on the use of laboratory digital devices for various measurements, which he can practice in his working life

A4- Building practical digital circuits

with practical experiences on the malfunctions of various electrical devices

B- Transferred general and rehabilitative skills (other skills related to employability and personal development)

Teaching and learning methods

Lecture style, workshop, computer simulation, summer training

Evaluation methods The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

11- structure of subject

weeks	hours	Required learning outcomes	name / course or topic	education method	Evaluation method
weekly	5	Attached	Electronics department	Theoretical + practical	oral exams

12-Infrastructure	
1-Required references books	1-Principles of electrical circuits - book, written by floyed ,
2- Main References (Sources)	
A- Recommended books and references (scientific journals, reports)	1-The virtual library of the Ministry of Higher Education and Scientific Research

13- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course

COURSE DESCRIPTION FORM

1-Description Course: mathematics (first class)

2- Study of the logarithm and their types, vectors, matrix's

3-Study of applications and analysis of mathematical equations

4-Study of integrals and its applications

5-Study of derivative of all kinds

6-An idea about method of integrals

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.

Name of university	Northern Technical university
Name of Department	Electronics techniques
Name of subject	Mathematics
Available forms of attendance	by Different teaching method in the theoretical
Course/year	30 weeks
Total number of hours of study	60 hours in the year (2 hours in week)
Description creation date	2023/9/13
9- Academic Program Objectives: Study of the logarithm and their types, vectors, matrix's Study of applications and analysis of mathematical equations Study of integrals and its applications Study of derivative of all kinds	

An idea about method of integrals

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

A- Cognitive aims

A1- Learn about the different complex problems

A2- use mathematics in application

b- Subject-specific skill objectives

A1- To develop a student's ability to find solutions to complex problems

A2- Mathematics applications in reality

A3 - Using the Mat lab program and linking them to math equations

10-Teaching and learning methods

The theoretical lecture (with various means of explanation), power point, the practical lecture (with various means of explanation), scientific reports. different teaching method . Department's YouTube.

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

Emotional and value aims

A1- Identify student to solve complex equations

A2 - Teaching the student the basics of mathematics, how they solve

A3- Training the student on the use of Mat lab in mathematics

A4- Building practical electronic circuits

Teaching and learning methods

Lecture style, workshop, computer simulation, summer training

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student

seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

11- structure of subject

weeks	hours	Required learning outcomes	name / course or topic	education method	Evaluation method
weekly	2	Attached	Mathematics	Theoretical	oral exams

12-Infrastructure

1-Required references books	1-calculas by finey and Thomas -
2- Main References (Sources)	
A- Recommended books and references (scientific journals, reports)	1-The virtual library of the Ministry of Higher Education and Scientific Research

13- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course

COURSE DESCRIPTION FORM

1-Description Course: occupational safety (first class)

Electricity hazards study

Study the risks of radiation and methods of prevention

Study dealing with electricity on the job

Study the prevention of toxic gases and methods of prevention

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.

Name of university	Northern Technical university
Name of Department	Electronics techniques
Name of subject	occupational safety
Available forms of attendance	by Different teaching method in the theoretical
Course/year	15 weeks
Total number of hours of study	30 hours in the year (2 hours in week)
Description creation date	2023/9/13
9- Academic Program Objectives: Electricity hazards study Study the risks of radiation and methods of prevention Study dealing with electricity on the job Study the prevention of toxic gases and methods of prevention	
10-Course outcomes and methods of teaching, learning and assessment	

A- Cognitive aims
A 1- Knowing the methods of prevention
A 2- Take advantage of the types of civil defense in the event of an emergency
A3- To develop a student's ability to develop solutions when risks occur

b- Subject-specific skill objectives

10-Teaching and learning methods

The theoretical lecture (with various means of explanation), power point, the practical lecture (with various means of explanation), scientific reports. different teaching method . Department's YouTube.

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam .

Emotional and value aims

A1- Develop a student's ability to find solutions to disasters that occur at work
A2- Occupational safety applications in reality
A3 - Using methods of survival and prevention in case of accidents

Teaching and learning methods

Lecture style, workshop, computer simulation, summer training

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

11- structure of subject

weeks	hours	Required learning outcomes	name / course or topic	education method	Evaluation method
weekly	2		occupational safety	Theoretical	oral exams

12-Infrastructure	
1-Required references books	
2- Main References (Sources)	
A- Recommended books and references (scientific journals, reports)	1-The virtual library of the Ministry of Higher Education and Scientific Research

13- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course

Curriculum Skills Outline
kindly put a mark on the boxes corresponding to the individual learning outcomes from the program subject to evaluation

Learning outcomes required from the program																
year	**code of course**	**name of subject**	**basic or optional**	**cognitive aims**				**skill aims related to the program**				**Emotional and value goals**				OTHER SKILLS RELATED TO employability and personal development
2020/2021				A 1	A 2	A 3	A 4	B 1	B 2	B 3	B 4	C 1	C 2	C 3	C 4	D
		electronic/first stage	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√
		digital circuits	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√
		electrical circuits	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√
		computers applications	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√
		mathematics	**optional**	√	√	√	√	√	√	√	√	√	√	√	√	√
		Engineering drawing	**optional**	√	√	√	√	√	√	√	√	√	√	√	√	√
		E	**optional**	√	√	√	√	√	√	√	√	√	√	√	√	√
		human rights	**optional**	√	√	√	√	√	√	√	√	√	√	√	√	√
		occupational safety	**optional**	√	√	√	√	√	√	√	√	√	√	√	√	√
		electronics circuits	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√
		communications	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√
		microprocessor	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√
		audio and video	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√
		measuring devices	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√
		control	**optional**	√	√	√	√	√	√	√	√	√	√	√	√	√
		PLC	**optional**	√	√	√	√	√	√	√	√	√	√	√	√	√
		E	**optional**	√	√	√	√	√	√	√	√	√	√	√	√	√
		project	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√

COURSE DESCRIPTION FORM

1-Description Course: Electronic Circuits (second class)

2- Study of the composition, properties and use of electronic components in the design of electronic circuits

3-Study of applications and analysis of electronic circuits for electronic components

4-Study of operations amplifier and its applications

5-Study of thyristors of all kinds

6-An idea about integrated circuits

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.

Name of university	Northern Technical university
Name of Department	Electronics techniques
Name of subject	Electronics circuits
Available forms of attendance	by Different teaching method electronically in the side theoretical and practical by attendance according to the blended learning
Course/year	30 weeks
Total number of hours of study	120hours in the year (4 hours in week)

Description creation date	2023/9/13

9- Academic Program Objectives: Operations amplifier application
oscillators
filters
voltage regulators
Thyristors
An idea about integrated circuits

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

A- Cognitive aims
A1- Learn about the different electronic circuits
A2- Take advantage of these circuits in designing electronic projects
A3- Maintenance and repair of various electronic circuits

b- Subject-specific skill objectives

B1 - Introducing the student to basic electronic circuits, ways of designing and using them in many practical applications.
B2 - Electronic components manufactured from semiconductors of different types - composition - properties - uses In electronic circuits - their applications and analysis of their electronic circuits. Giving the student an idea of
Photo electronics, its components, integrated circuits, and simplified applications of the process amplifier

10-Teaching and learning methods

The theoretical lecture (with various means of explanation), power point, the practical lecture (with various means of explanation), scientific reports. different teaching method . Department's YouTube.

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam in turn

Emotional and value aims

A1- Identify and implement the applied circuits of some components
A2 - Teaching the student the basics of logical circuits in electronic computers, how they work, and writing and implementing programs in assembly language for microprocessors
A- Training the student on the use of laboratory electrical devices for various measurements, which he can practice in his working life
A4- Building practical electronic circuits
A5 - The student acquires the skill in the field of electronic device maintenance,

equipment malfunctions and applied circuits, by teaching the student the methods used in maintenance and the importance of components, then training the student with practical experiences on the malfunctions of various electronic devices
B- Transferred general and rehabilitative skills (other skills related to employability and personal development) B1- Welding B 2- Plumbing B 3- Turning B 4- The refrigerator B 5- Search on the Internet
Teaching and learning methods Lecture style, workshop, computer simulation, summer training
Evaluation methods The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam in turn

11- structure of subject

weeks	hours	Required learning outcomes	name / course or topic	education method	Evaluation method
weekly	5	Attached	Electronics department	Theoretical + practical	oral exams

12-Infrastructure

1-Required references books	1-Principles of Electronics book, - written by I.P. Malvino, translated by Badr Muhammad Ali Al-Watar and others
2- Main References (Sources)	ELECTRONIC DEVICES, CONVENTIONAL CURRENT VERSION, FLOYD, .SEVENTHEDITION
A- Recommended books and references (scientific journals, reports)	1-The virtual library of the Ministry of Higher Education and Scientific Research

13- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course

COURSE DESCRIPTION FORM

1-Description Course: communications (second class)

2- Study of the basics of communications and filters and their types

3-Study of the signals and their types

4-Study of amplitude modulations and frequency modulations

5-Study of pulses and their types and study FDM and TDM

6-An idea about antenna

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.

Name of university	Northern Technical university
Name of Department	Electronics techniques
Name of subject	Communications
Available forms of attendance	by Different teaching method electronically in the side theoretical and practical by attendance according to the blended learning
Course/year	30 weeks
Total number of hours of study	120hours in the year (4 hours in week)
Description creation date	2023/9/13

9- Academic Program Objectives: Operations amplifier application
Study of the basics of communications and filters and their types
Study of the signals and their types
Study of amplitude modulations and frequency modulations
Study of pulses and their types and study FDM and TDM
An idea about antenna

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

A- Cognitive aims
A1- Learn about the different signals system
A2- learn about analogue and digital communications
A3- Maintenance of various communications circuits

b- Subject-specific skill objectives

B1 - Introducing the student to basic communication
B2 – learning student the types of signals and how can dealing with it

10-Teaching and learning methods

The theoretical lecture (with various means of explanation), power point, the practical lecture (with various means of explanation), scientific reports. different teaching method . Department's YouTube.

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

Emotional and value aims

A1- Identify and implement the applied filter circuits in the frequencies
A2 - Teaching the student the basics of communications
A- Training the student on the use Dealing with signals and their different types of laboratory
A4- Generate practical signals

Teaching and learning methods

Lecture style, workshop, computer simulation, summer training

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

11- structure of subject

weeks	hours	Required learning outcomes	name / course or topic	education method	Evaluation method
weekly	5	Attached	Communications	Theoretical + practical	oral exams

12-Infrastructure

1-Required references books	-
2- Main References (Sources)	.
A- Recommended books and references (scientific journals, reports)	1-The virtual library of the Ministry of Higher Education and Scientific Research

13- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course

COURSE DESCRIPTION FORM

1-Description Course : measuring devices (second class)

- Study the basics of devices and methods of measurements

- Calculation of load resistance for multiple circuits

- The galvanometer and how to deal with it

- Using multiple bridge methods for the purpose of measuring resistance, coil or unknown capacitance

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.

Name of university	Northern Technical university
Name of Department	Electronics techniques
Name of subject	measuring devices
Available forms of attendance	by Different teaching method electronically in the side theoretical and practical by attendance according to the blended learning
Course/year	30 weeks
Total number of hours of study	120hours in the year (4 hours in week)
Description creation date	2023/9/13
9- Academic Program Objectives:	

- Study the basics of devices and methods of measurements
- Calculation of load resistance for multiple circuits
- The galvanometer and how to deal with it
- Using multiple bridge methods for the purpose of measuring resistance, coil or unknown capacitance

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

A- Cognitive aims

A1- Get to know the circuits of measurement devices

A 2- Take advantage of the galvanometer to measure

A 3- Detection of an unknown,resistance, or area through bridges

b- Subject-specific skill objectives

A1- Building practical measurements and studying the properties of each measurement

A 2- Using basic electronic devices and connecting electronic elements in simple electronic circuits.

A3 - Knowing the methods of measuring the resistance of the unknown.

10-Teaching and learning methods

The theoretical lecture (with various means of explanation), power point, the practical lecture (with various means of explanation), scientific reports. different teaching method . Department's YouTube.

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

b- Subject-specific skill objectives

A1- Building practical measurements and studying the properties of each measurement

A 2- Using basic electronic devices and connecting electronic elements in simple electronic circuits.

A3 - Knowing the methods of measuring the resistance of the unknown.

Teaching and learning methods

Lecture style, workshop, computer simulation, summer training

Evaluation methods
The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

11- structure of subject

weeks	hours	Required learning outcomes	name / course or topic	education method	Evaluation method
weekly	5	Attached	measuring devices	Theoretical + practical	oral exams

12-Infrastructure

1-Required references books	-
2- Main References (Sources)	.
A- Recommended books and references (scientific journals, reports)	1-The virtual library of the Ministry of Higher Education and Scientific Research

13- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course

COURSE DESCRIPTION FORM

1-Description Course: audio and video (second class)

Study of television operating systems

Studying circuits in television systems

A study on how to control a TV using the remote control

An idea about integrated circuits

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.

Name of university	Northern Technical university
Name of Department	Electronics techniques
Name of subject	audio and video
Available forms of attendance	by Different teaching method electronically in the side theoretical and practical by attendance according to the blended learning
Course/year	30 weeks
Total number of hours of study	120hours in the year (4 hours in week)
Description creation date	2023/9/13
9- Academic Program Objectives Study of television operating systems Studying circuits in television systems A study on how to control a TV using the remote control	
10-Course outcomes and methods of teaching, learning and assessment A- Cognitive aims A1- Learn about television and its types A 2- Take advantage of circuits to repair TV	

A3- Maintenance of various television systems

b- Subject-specific skill objectives

A1- Building practical electronic circuits in the field of television and studying their properties and applications

A2- Using basic equipment for repairing

A3 - Know the specifications and features of the TV parts.

A4- Identify and implement the types of television and some components.

10-Teaching and learning methods

The theoretical lecture (with various means of explanation), power point, the practical lecture (with various means of explanation), scientific reports. different teaching method . Department's YouTube.

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

Teaching and learning methods

Lecture style, workshop, computer simulation, summer training

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

11- structure of subject

weeks	hours	Required learning outcomes	name / course or topic	education method	Evaluation method
weekly	5		audio and video	Theoretical + practical	oral exams

12-Infrastructure

1-Required references books	-
2- Main References (Sources)	.
A- Recommended books and references (scientific journals, reports)	1-The virtual library of the Ministry of Higher Education and Scientific Research

13- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course

COURSE DESCRIPTION FORM

1-Description Course : microprocessors (second class)

-Introducing microcomputers, their types, and their relationship to other electronic computers. Definitions of microcomputer terms. Microcomputer architecture.

- Vectors, functions and detailed block diagram of the 8085 processor, explaining the components: general registers, accumulator, program counter register, stack pointer register, two temp registers.

- Detailed block diagram of the 8085 processor, an explanation of the components (supplemented): the notification register, the instruction register, the arithmetic and logic unit, the decoder circuit, the timing and control unit, the data and addresses bumpers

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.

Name of university	Northern Technical university
Name of Department	Electronics techniques
Name of subject	microprocessors
Available forms of attendance	by Different teaching method electronically in the side theoretical and practical by attendance according to the blended learning
Course/year	30 weeks
Total number of hours of study	120hours in the year (4 hours in week)
Description creation date	2023/9/13
9- Academic Program Objectives: oscillators Vectors, functions and detailed block diagram of the 8085 processor, explaining the components: general registers, accumulator, program counter	

register, stack pointer register, two temp registers.

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

A- Cognitive aims

A1- Learn about microcomputers, their types, and their relationship to other electronic computers

A2- Take advantage of these circuits in designing microcomputer projects

A3 - Programming using a microcomputer

11-Teaching and learning methods

The theoretical lecture (with various means of explanation), power point, the practical lecture (with various means of explanation), scientific reports. different teaching method . Department's YouTube.

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam in turn

Emotional and value aims

1- Use of microcomputer systems and their applications

A2- Using microcomputer programming

A3 - Knowing the specifications and features of the records in the flour calculators.

A4- Identifying and implementing the applied circuits of some components.

Teaching and learning methods

Lecture style, workshop, computer simulation, summer training

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

12- structure of subject

weeks	hours	Required learning outcomes	name / course or topic	education method	Evaluation method
weekly	5		microprocessors	Theoretical + practical	oral exams

13-Infrastructure

1-Required references books	-
2- Main References (Sources)	.
A- Recommended books and references (scientific journals, reports)	1-The virtual library of the Ministry of Higher Education and Scientific Research

14- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course

COURSE DESCRIPTION FORM

1-Description Course: control (second class)

Studying the types of engines

How to control the drives

Study on contactor and switches

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.

Name of university	Northern Technical university
Name of Department	Electronics techniques
Name of subject	Control
Available forms of attendance	by Different teaching method electronically in the side theoretical and practical by attendance according to the blended learning
Course/year	15 weeks
Total number of hours of study	45hours in the semester (3 hours in week 2 hours practice and one theoretic)
Description creation date	2023/9/13
9- Academic Program Objectives: Studying the types of engines How to control the drives Study on contactor and switches	
10-Course outcomes and methods of teaching, learning and assessment A- Cognitive aims A1- Learn about engines and how they work A2- Take advantage of these engines in projects A3- Maintenance and repair of various engines and their winding	

b- Subject-specific skill objectives

A1- Design of switches to control electrical circuits

A 2- The use of control keys, their methods and types

A3 - Know the types of engine control.

A4- Identifying and implementing the applied circuits of some components.

10-Teaching and learning methods

The theoretical lecture (with various means of explanation), power point, the practical lecture (with various means of explanation), scientific reports. different teaching method . Department's YouTube.

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam in turn

A1- Design of switches to control electrical circuits

A 2- The use of control keys, their methods and types

A3 - Know the types of engine control.

A4- Identifying and implementing the applied circuits of some components.

Teaching and learning methods

Lecture style, workshop, computer simulation, summer training

Evaluation methods

The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam

11- structure of subject

weeks	hours	Required learning	name / course or	education method	Evaluation method

		outcomes	topic		
weekly	3	Attached	Electronics department	Theoretical + practical	oral exams

12-Infrastructure

1-Required references books	-
2- Main References (Sources)	.
A- Recommended books and references (scientific journals, reports)	1-The virtual library of the Ministry of Higher Education and Scientific Research

13- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course