Republic of Iraq
Ministry of Higher Education & Scientific Research
Supervision and Scientific Evaluation Directorate
Quality Assurance and Academic Accreditation
International Accreditation Dept.

Academic Program Specification Form For The Academic Year 2022/2023

University: Northern Technical University
College: Al-dour Technical Institute
Department: -Electronic Techniques
Date Of Form Completion :20-12-2022

Dean's Name
: Dr.MAHA Alteif jasim
Date: 20 / 12 / 2022
Signature

Dean's Assistant For Scientific Affairs
:Dr.Magsud Adil
Date: 20 / 12 / 2022
Signature

Head of department
Uzba hameed salman
Date: 20 / 12 / 2022
Signature

Quality Assurance and University Performance Manager: Haider Muhsen
Date: 20 / 12 / 2022
Signature

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This Program Specification provides a concise summary of the main features of the program and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the program.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Program Title	Electronic Techniques
4. Title of Final Award	Technical diploma in electronic Techniques
5. Modes of Attendance offered	Course
6. Accreditation	ABET
7. Other external influences	The labor market by following it up for the purpose of working on qualifying our students as appropriate, in addition to the summer training program
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Programme	
Vision : The vision Providing knowledge of electronic techniques and acquiring technical skills in operating and maintaining electronic devices, providing the necessary knowledge to deal with computer technologies in various fields	
Message: the message Providing experience in dealing with electronic devices, computer and modern technology and will benefit from them in various practical	

applications and how to deal with their solid materials and installation and knowledge necessary electronic devices.

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding
((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

B. Subject-specific skills
B1. The ability to apply knowledge in electronic fields.
B2. Understand the professional and ethical responsibilities of the field of specialization.
B3. The ability to evaluate course outcomes with the faculty, industrial practitioners and professionals, as well as employers and graduate students for improvement.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

Assessment methods

Quizzes; first term. Second term exam. And final exam.

C. Thinking Skills
C1. The ability to communicate effectively with those involved in the field of specialization
C2. Acknowledgment of the need and ability to engage in lifelong learning and the broad learning necessary to understand the impact of global solutions, electronic problems and the social environment.
C3. Knowledge of contemporary issues in the field of specialization

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

Assessment methods

Quizzes; first term. Second term exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. The student can use the computer in designing and using modern programs
D2. The student learned some laws and theories of mathematics, which leads him to apply laws within the specialization

D3. The student learns the basics of occupational safety principles, in a way that contributes to preserving oneself, equipment, and various devices

D4. Teaching the student the basics of writing reports and using the technical English language through terminology within the major

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

Assessment Methods

Quizzes; first term. Second term exam. And final exam.

11. Programme Structure

Level/Year	Course or Module Code	Course or Module Title	Credit rating	12. Awards and Credits
First year	**EOTO100**	**Principles of Electronics**	4	Bachelor Degree Requires (58) credits
	EOTO105	**Electronics**	4	
	EOTO101	**DC electrical circuits**	4	
	EOTO106	**AC electrical circuits**	4	
	EOTO102	**Principles of digital circuits**	4	
	EOTO107	**Digital circuits applications**	4	
	TIDO100	**Principles of Mathematics**	2	
	TIDO101	**Differential & Integration**	2	
	DIE15	**Principles of Computer**	3	
	DIE20	**Computer Applications**	3	
	DIE16	**Engineering Drawing**	2	
	DIE21	**Electrical Drawing**	2	
	DIE17	**Arabic Language**	2	
	DIE18	**Human rights and**	2	
	DIE22	**Democracy**	2	
	DIE24	**Electronic Workshop**	4	
	DIE25	**Electrical Workshop**	4	
	DIE19	**Factories (1)**	4	
	DIE23	**Factories (2)**	4	
Second year	**EOTO213**	**Communications(1)**	4	Bachelor Degree Requires (70) credits
	EOTO220	**Communications(2)**	4	
	EOTO210	**Electronic Circuit (1)**	4	
	EOTO217	**Electronic Circuit (2)**	4	

	EOTO212	**Measurements Devices (1)**	4	
	EOTO219	**Measurements Devices (2)**	4	
	EOTO211	**Microcomputers (1)**	4	
	EOTO218	**Microcomputers (2)**	4	
	EOTO215	**Computer applications(1)**	3	
	EOTO226	**Computer applications(2)**	3	
	EOTO214	**Electronic instrumentation maintenance workshop(1)**	4	
	EOTO221	**Electronic instrumentation maintenance workshop(2)**	4	
	EOTO223	Control systems	3	
	EOTO224	**Programmable logic controller (PLC)**	3	
	DIE30	The project(1)	2	
	DIE31	The project(2)	2	

13. Personal Development Planning

-The establishment of field visits to the public and private sectors and universities within the jurisdiction to see the field development in the field of specialization
-Involving students in seminars, scientific seminars and training courses

14. Admission criteria

The criteria for admission to morning studies are considered within the central admission plan, which is approved by the Ministry of Higher Education and Scientific Research. As for the admission criteria for evening studies, they are identical to the actual admission plan for morning studies

15. Key sources of information about the programs

Programs and resources are approved by the sectoral committees at the university, and there is a periodic update on them through annual meetings, in a .way that suits the labor market

Curriculum Skills Map																			
please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed																			
				Programme Learning Outcomes															
Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	**A2**	**A3**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**	**D1**	**D2**	**D3**	**D4**
First year	**EOTO100**	Principles of Electronic	C	X	X			X	X			X				X	X		
	EOTO105	Electronic	C	X	X			X	X			X				X	X		
	EOTO101	DC Electrical circuits	C	X				X	X			X	X			X	X		
	EOTO106	AC Electrical circuits	C	X				X	X			X	X			X	X		
	EOTO102	Principles of digital circuits	C	X				X	X			X	X			X	X		
	EOTO107	Digital circuits applications	C	X				X	X			X	X			X	X		
	TIDO100	Principles of Mathematics	C	X				X	X			X				X	X		
	TIDO101	Differential & Integration	C	X				X	X			X				X	X		
	DIE15	Principles of Computer	C	X				X	X			X				X	X		
	DIE20	Computer applications	C	X				X	X			X				X	X		
	DIE16	Engineering drawing	C	X				X	X			X				X	X		
	DIE21	Electrical drawing	C	X				X	X			X				X	X		
	DIE17	Arabic Language	C	X	X			X	X			X	X			X	X		
	DIE18	Human rights	C	X	X			X	X			X	X			X	X		

	DIE22	Democracy	C	X	X			X	X			X	X			X	X		
	DIE24	Electronic workshop	C	X	X			X	X			X				X	X		
	DIE25	Electrical workshop	C	X	X			X	X			X				X	X		
	DIE19	Factories (1)	C	X	X			X	X			X				X	X		
	DIE23	Factories (2)	C	X	X			X	X			X				X	X		
Second Year	**EOTO213**	Communications(1)	C	X	X			X	X			X				X	X		
	EOTO220	Communications(2)	C	X	X			X	X			X				X	X		
	EOTO210	Electronic circuits(1)	C	X	X			X	X			X				X	X		
	EOTO217	Electronic circuits(2)	C	X	X			X	X			X				X	X		
	EOTO212	Measurements Devices (1)	C	X	X			X	X			X				X	X		
	EOTO219	Measurements Devices (2)	C	X	X			X	X			X				X	X		
	EOTO211	Microcomputers (1)	C	X	X			X	X			X				X	X		
	EOTO218	Microcomputers (2)	C	X	X			X	X			X				X	X		
	EOTO215	Computer applications(1)	C	X				X	X			X				X	X		
	EOTO226	Computer applications(2)																	
	EOTO214	Maintenance(1)	C	X				X	X			X				X	X		
	EOTO221	Maintenance(2)	C	X				X	X			X				X	X		
	EOTO223	Control systems	C	X												X	X		
	EOTO224	PLC	C	X															
	DIE30	Project(1)	C																
	DIE31	Project(2)	C																

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Principles of Electronic/ EOTO100
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Scientifically qualifying the graduate in the field of electronics and electricity by introducing the basic scientific concepts related to engineering and harnessing them in this field and pushing students towards scientific research outside the framework of the school curriculum	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Scientifically qualifying the graduate in the field of electronics and electricity by introducing the basic scientific concepts related to engineering and harnessing them in this field and pushing students towards

scientific research outside the framework of the school curriculum -
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Principles of Electronic				First Stage	
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	Theoretical semiconductors - atomic structure - energy levels - crystals - conduction in crystals / gap current - how gaps move.	Practical+Theoretical	Quizes+Reports
2	4	Acknowledgment and Practical application	Inoculation - P-type positive crystal - negative N-type crystal, electron current and gap current - total resistance.	Practical+Theoretical	Quizes+Reports
3+4	4	Acknowledgment and Practical application	Semiconductor diodes - PN connection - evacuation zone configuration - diaphragm voltage - power hill - thermal effects - diode bias - forward bias - reverse bias - forward and reverse characteristic curves - fleeting current - minority carriers current - permissible leakage current - refraction voltage - Breakdown voltage - Greatest forward current - Greatest Reverse current - Equivalent circuit of the diode.	Practical+Theoretical	Quizes+Reports
5	4	Acknowledgment and Practical application	Binary as current-uniform half-wave-value-constant value and calculation-effective-output frequency	Practical+Theoretical	Quizes+Reports
6	4	Acknowledgment and Practical application	Full wave unification - using a mid-branch transformer - gantry uniform - calculation of continuous and effective values of voltages and currents - output frequency. Comparison between half-wave and full wave unification - a comparison between full wave units.	Practical+Theoretical	Quizes+Reports
7	4	Acknowledgment and Practical application	Filters - capacitive filtration - LC and RC filters - output voltages - ripple - voltage multipliers - trim circuits - positive trim - negative trim - composite trim - peak-to-peak detector - positive and .negative clamps	Practical+Theoretical	Quizes+Reports
8+9	4	Acknowledgment	Zener diode - structure -	Practical+Theoretical	Quizes+Reports

		and Practical application	symbol - forward and reverse properties - breakdown and refraction potentials - zener impedance - power tolerance - temperature effects - zener approximation - constant voltage regulation - constant voltage source circuit - variable capacitance diode and its applications.		
10+11	4	Acknowledgment and Practical application	Bipolar transistor - combination - symbol - properties - regions - definition (Bdc) - definition (Cdc) - relationship between them - definition of important regions on characteristic curves - transistor bias circuits - base bias - emitter bias - collector bias - approximation in transistor and circuit Equivalency.	Practical+Theoretical	Quizes+Reports
12	4	Acknowledgment and Practical application	Transistor characteristic curves - Work areas - Icbo definition, Iceo - Current gain curve - Relationship between Ic, Icbo.	Practical+Theoretical	Quizes+Reports
13	4	Acknowledgment and Practical application	Transistor bias - base bias - emitter bias circuits.	Practical+Theoretical	Quizes+Reports
14	4	Acknowledgment and Practical application	Collector bias, self-bias, feed-back bias, voltage divider bias, practical examples.	Practical+Theoretical	Quizes+Reports
15	4	Acknowledgment and Practical application	Action points, sleep points, practical examples.	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Electronic/ EOTO105
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Scientifically qualifying the graduate in the field of electronics and electricity by introducing the basic scientific concepts related to engineering and harnessing them in this field and pushing students towards scientific research outside the framework of the school curriculum	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Scientifically qualifying the graduate in the field of electronics and electricity by introducing the basic scientific concepts related to engineering and harnessing them in this field and pushing students towards scientific research outside the framework of the school curriculum -
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market

- Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Electronic			**First Stage**		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	Transistor continuous equivalent circuit-constant load line-.	Practical+Theoretical	Quizes+Reports
2+3	4	Acknowledgment and Practical application	Using the transistor to amplify small signals - AC circuit - Current gain - Voltage gain - Power gain - Perfect approximation - Hybrid constants - Equivalent circuit using h coefficients - Voltage gain - Current gain - Power gain - Input and output resistors - Small signal amplifiers - Al-Qaeda Market - Al-Ba`ith Market.	Practical+Theoretical	Quizes+Reports
4	4	Acknowledgment and Practical application	The use of the transistor in voltage regulation - series regulator - parallel regulator - DC voltage source circuit.	Practical+Theoretical	Quizes+Reports
5+6	4	Acknowledgment and Practical	Field Effect Transistor - Structure - Curved MOSFET	Practical+Theoretical	Quizes+Reports

		application	- E-MOSFETD-MOSFET - Wicker Curve - Tight Strength Curves Vgs, Idss, Vp - Comparison of BJT, JFET-theoretical Work		
7+8	4	Acknowledgment and Practical application	FET Biasing Circuits - Constant Current Source Biasing - Action Point - Self Biasing - FET Equivalent Circuit - Using FET in Small Signal Amplification - Comparison of FET Types - (MOSFET, FET) (BJT)	Practical+Theoretical	Quizes+Reports
9	4	Acknowledgment and Practical application	Light Dependent Resistor - Light Emitting Diode - Photodiode - Phototransistor - Seven Pieces Board - Structure and Applications.	Practical+Theoretical	Quizes+Reports
10+13	4	Acknowledgment and Practical application	Current-controlled silicon modulators (thyristors) - structure and types - properties - theoretical work - triac - dayac - their symbol - properties - theoretical work - comparison between thyristors, dyacs and triacs - protection of thyristors (from voltage change, from changing current).	Practical+Theoretical	Quizes+Reports
14	4	Acknowledgment and Practical application	Operations amplifier 741 - its symbol - its connection terminals - its uses	Practical+Theoretical	Quizes+Reports
15	4	Acknowledgment and Practical application	Integrated circuits - meaning - their advantages and disadvantages - a comparison between them and the separate components - an idea of their manufacture - operations amplifier 741 - its symbol - its connection terminal - its uses - operations amplifier applications - small signal amplification - signal collection - signal subtraction - examples. Operations amplifier applications: differential, comparative, integrator, template, etc	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	DC Electrical circuits/ EOTO101
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
A- Knowledge and Understanding Study the concept of electricity, voltage, insulating materials, direct current, and how to connect the electrical circuit	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
B- Knowledge and Understanding Study the concept of electricity, voltage, insulating materials, direct current, and how to connect the electrical circuit
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

DC Electrical Circuit					**First stage**
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	Electric units system- Mathmatic applications- definition of basic units of voltage, current and resistance-electric circuit components- ohm's law- factors effecting on resistance- resistivity of conductors and insulators- effect of temp. on resistance- temp. Coeff. of resistance- Examples	Practical+Theoretical	Quizes+Reports
2	4	Acknowledgme	DC current circuits	Practical+Th	Quizes+Report

		nt and Practical application	includes: -Series connection of resistances and examples -Parallel connection of resistances and examples -Combind connection of resistances and examples -Star and delta connection of resistances, conversion between star and delta with examples	eoretical	s
3	4	Acknowledgment and Practical application	Applications on series, parallel, combind and star-delta connections	Practical+Theoretical	Quizes+Reports
4	4	Acknowledgment and Practical application	Kirchoff Laws-Kirchoff current and voltage laws with examples	Practical+Theoretical	Quizes+Reports
5	4	Acknowledgment and Practical application	Maxwell's law with examples	Practical+Theoretical	Quizes+Reports
6	4	Acknowledgment and Practical application	Definition of Thevinin's theorem-How to apply in dc current	Practical+Theoretical	Quizes+Reports
7	4	Acknowledgment and Practical application	Definition of Norton's theorem- How to apply in dc current	Practical+Theoretical	Quizes+Reports
8	4	Acknowledgment and Practical application	Examples on Thevinin's and Norton's theorems	Practical+Theoretical	Quizes+Reports
9	4	Acknowledgment and Practical application	Definition of Supper position theorem-application of it in dc current-examples-Max. power transfer theorem with examples	Practical+Theoretical	Quizes+Reports
10	4	Acknowledgment and Practical application	AC quantities-definintion of AC current characterstics – generation of AC current with waveform drawing-RMS value-Form factor – examples	Practical+Theoretical	Quizes+Reports

11	4	Acknowledgment and Practical application	Vector of AC quantities-definintion of it – Phasor representation of its-phase angle-resultant of vector AC add., Subt., multiply, division with examples	Practical+Theoretical	Quizes+Reports
12	4	Acknowledgment and Practical application	Effect of AC current on only resistance circuit-only inductance circuit-only capacitor circuit-phase angle between voltage and current with examples	Practical+Theoretical	Quizes+Reports
13	4	Acknowledgment and Practical application	Effect of AC current on resistance and inductance in series circuit-resistance and capacitor in series-resistance and inductance and capacitor in series-phase angle- total impedance with examples	Practical+Theoretical	Quizes+Reports
14	4	Acknowledgment and Practical application	Effect of AC current on resistance and inductance in parallel circuit-resistance and capacitor in series-resistance and inductance and capacitor in series-phase angle- total impedance with examples	Practical+Theoretical	Quizes+Reports
15	4	Acknowledgment and Practical application	Using j-operator to find total impedance-total admittance-current, voltage and phase angle for impedances in series and parallel with examples	Practical+Theoretical	Quizes+Reports

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1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	AC Electrical circuits/ EOTO106
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
A- Knowledge and Understanding Study the concept of electricity, voltage, insulating materials, direct current, and how to connect the electrical circuit	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
B- Knowledge and Understanding Study the concept of electricity, voltage, insulating materials, direct current, and how to connect the electrical circuit
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

AC Electrical Circuit					**First stage**
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	Series and Parallel resonance circuits-calculation of voltage, current, impedance, phase angle and frequency at resonance with examples	Practical+Theoretical	Quizes+Reports
2	4	Acknowledgment and Practical application	Applications of Thevinin's, Norton's and supper postion theorems with examples	Practical+Theoretical	Quizes+Reports
3	4	Acknowledgm	Calculation of power in AC circuits-only	Practical+Theoreti	Quizes+Repo

		ent and Practical application	resistance circuit-only inductance circuit-only capacitor circuit- resistance, inductance and capacitor in series and parallel-active and reactive power	cal	rts
4	4	Acknowledgment and Practical application	Appearnt power-power triangle drawing- power factor correction	Practical+Theoretical	Quizes+Reports
5	4	Acknowledgment and Practical application	Max. power transfer in AC circuits- with examples	Practical+Theoretical	Quizes+Reports
6	4	Acknowledgment and Practical application	Networks analysis using Nodel analysis-number of nodel equations	Practical+Theoretical	Quizes+Reports
7	4	Acknowledgment and Practical application	Examples on Networks analysis using Nodel analysis	Practical+Theoretical	Quizes+Reports
8	4	Acknowledgment and Practical application	AC three phase circuits-generation of 1-phase, 2-phase and three phase current-star delta connection-phase power-line power- total power-examples	Practical+Theoretical	Quizes+Reports
9	4	Acknowledgment and Practical application	Examples on AC three phase circuits with star delta coonections	Practical+Theoretical	Quizes+Reports
10	4	Acknowledgment and Practical application	Methods of power measurement for three phase loads-wattmeter- two wattmeter-three wattmeter	Practical+Theoretical	Quizes+Reports
11	4	Acknowledgment and Practical application	Transient cases in circuits- DC transient – RL-RC-RLC transient	Practical+Theoretical	Quizes+Reports
12	4	Acknowledgment and Practical application	Transient AC currents– Sinosoidal Transient currents in RL-RC-RLC circuits	Practical+Theoretical	Quizes+Reports

13	4	Acknowledgment and Practical application	Self induction of coil- equation of self induction- mutual induction between two colis: - Progresive Series connection - Reverse Series connection	Practical+Theoretical	Quizes+Reports
14	4	Acknowledgment and Practical application	Transformers- structure-drawing- charecterstics- its operation and relationships- types of its-examples	Practical+Theoretical	Quizes+Reports
15	4	Acknowledgment and Practical application	Curves of current in induction circuit- current drawing and calculation of time constant-charge, discharge the capacitors-time constant effect- examples.	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Principles of digital circuits/ **EOTO102**
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First

7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
A- Building logic and digital circuits and teaching students the basics of the binary system	
12. Infrastructure	
10· Learning Outcomes, Teaching ,Learning and Assessment Method	
B- Knowledge and Understanding Building logic and digital circuits and teaching students the basics of the binary system	
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field	
Teaching and Learning Methods	
Power point, Seminar, Discussion, Lecture, Test	
Assessment methods	
Quizzes; Midterm exam. And final exam.	
C. Thinking Skills C1.Carry out his duties on the job site with professional motives	
Teaching and Learning Methods	
Power point, Seminar, Discussion, Lecture, Test	
Assessment methods	
Quizzes; Midterm exam. And final exam.	
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	

Pre-requisites	
Minimum number of students	
Maximum number of students	

Principles of digital circuits			First stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	A general idea of numerical systems (types and details)	Practical+Theoretical	Quizes+Reports
2	4	Acknowledgment and Practical application	Transfers between the numerical systems	Practical+Theoretical	Quizes+Reports
3	4	Acknowledgment and Practical application	Logic gates (types, working principle, truth tables, logical symbol)	Practical+Theoretical	Quizes+Reports
4	4	Acknowledgment and Practical application	How to connect the logic gates to form logic circuits.	Practical+Theoretical	Quizes+Reports
5	4	Acknowledgment and Practical application	Boolean algebra and the rule of de-Morgan	Practical+Theoretical	Quizes+Reports
6	4	Acknowledgment and Practical application	Simplification of logical equations using Boolean algebra and the laws of De Morgan's laws.	Practical+Theoretical	Quizes+Reports
7	4	Acknowledgment and Practical application	The design of the logical gates using NOR and NANDcircuits,	Practical+Theoretical	Quizes+Reports
8	4	Acknowledgment and Practical application	Ways of writing the equation from truth table (POS, SOP).	Practical+Theoretical	Quizes+Reports
9	4	Acknowledgment and Practical application	Karnaugh Map (for two variables, the three variables, the four variables)	Practical+Theoretical	Quizes+Reports
10	4	Acknowledgm	Simplification of	Practical+Theoret	Quizes+Repo

		ent and Practical application	logical equations using Karnaugh Map	ical	rts
11	4	Acknowledgment and Practical application	Calculations in the binary system (addition, subtraction, subtraction using complements).	Practical+Theoretical	Quizes+Reports
12	4	Acknowledgment and Practical application	Logic circuit applications(half adder, full adder, parallel adder circuits)	Practical+Theoretical	Quizes+Reports
13	4	Acknowledgment and Practical application	Binarysubtractorcircuits (half subtractor,full subtractorparallel subtractor) circuit using the adder circuit by method of 1s complements.	Practical+Theoretical	Quizes+Reports
14	4	Acknowledgment and Practical application	The circuit of digital comparator (one stage and two stages)	Practical+Theoretical	Quizes+Reports
15	4	Acknowledgment and Practical application	The circuit of decoder size of 2:4 ,3:8 and 4:10	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Digital circuits applications/ EOTO107
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
A- Building logic and digital circuits and teaching students the basics of the binary system	
12. Infrastructure	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
B- Knowledge and Understanding Building logic and digital circuits and teaching students the basics of the binary system
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Digital circuits applications			First stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	The circuit of encoder size of 4:2, 8:3 and 10:4	Practical+Theoretical	Quizes+Reports
2	4	Acknowledgment and Practical application	Introduction to sequential logic circuits, a general idea of the Flip Flop, flip flop type (S-R).	Practical+Theoretical	Quizes+Reports
3	4	Acknowledgment and Practical application	The flip flop type J-K and master slave flip flop	Practical+Theoretical	Quizes+Reports
4	4	Acknowledgment and Practical application	The D- flip flop and T flip flop	Practical+Theoretical	Quizes+Reports
5	4	Acknowledgment and Practical application	The registers, design of registers, enter the information and output from registers	Practical+Theoretical	Quizes+Reports
6	4	Acknowledgment and Practical	The shift register, shift	Practical+Theoretical	Quizes+Reports

		application	to left, shift to right		
7	4	Acknowledgment and Practical application	The counter- asynchronous counter	Practical+Theoretical	Quizes+Reports
8	4	Acknowledgment and Practical application	The synchronous counter- the cycle counter	Practical+Theoretical	Quizes+Reports
9	4	Acknowledgment and Practical application	The multiplexer and its applications	Practical+Theoretical	Quizes+Reports
10	4	Acknowledgment and Practical application	The code convertor – the application of code convertor	Practical+Theoretical	Quizes+Reports
11	4	Acknowledgment and Practical application	Programmable logic array: Concepts of programmable logic array(PLA); Concepts of programmable array logic(PAL)	Practical+Theoretical	Quizes+Reports
12	4	Acknowledgment and Practical application	Buffers, Non inverting buffers, inverting buffers, Tri-state buffers, transmission gates	Practical+Theoretical	Quizes+Reports
13	4	Acknowledgment and Practical application	Introduction to Sequential logic latches and flip flops, Latches- Edgetriggered flip flop, Flip-flop operating characteristics, Flip-flop applications	Practical+Theoretical	Quizes+Reports
14	4	Acknowledgment and Practical application	Introduction To State Machine Design,	Practical+Theoretical	Quizes+Reports
15	4	Acknowledgment and Practical	State diagram and State	Practical+Theoretical	Quizes+Reports

		application	table		

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Principles of Mathematics/ TIDO100
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	30 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Introduce the student to the use of mathematics in other scientific subjects and increase his ability to think logically when solving exercises, as well as increase his ability to develop and how to link data with his information to obtain a solution to the problem.	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Introduce the student to the use of mathematics in other scientific subjects and increase his ability to think logically when solving exercises, as well as increase his ability to develop and how to link data with his information to .obtain a solution to the problem

B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Principles of Mathematics				First stage	
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1+2	2	Acknowledgment and Practical application	Matrices - Determinants - Electrical applications.	theoretical	Quizes+Reports

3	2	Acknowledgment and Practical application	Trigonometric identities and trigonometric equations.	theoretical	Quizes+Reports
4+7	2	Acknowledgment and Practical application	Complex numbers - the geometric representation of a complex number - the relationship of electrical units to the complex number - Find the roots of the complex number.	theoretical	Quizes+Reports
8	2	Acknowledgment and Practical application	Foundations and logarithms and their laws	theoretical	Quizes+Reports
9+10	2	Acknowledgment and Practical application	Differentiation - Algebra of Derivatives - Polynomial Functions and Their Derivatives - Chain Base - Complex Function - Parametric Function.	theoretical	Quizes+Reports
11+12	2	Acknowledgment and Practical application	Applications of differentiation - maximum and minimum values - distance, velocity, and acceleration. General physical and engineering applications.	theoretical	Quizes+Reports
13+14	2	Acknowledgment and Practical application	Finding the length of a curved arc - different applications.	theoretical	Quizes+Reports
15	2	Acknowledgment and Practical application	Tangent and column equation - velocity and acceleration - calculations of voltage and current change in terms of time.	theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Differential & Integration / TIDO101
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	30 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Introduce the student to the use of mathematics in other scientific subjects and increase his ability to think logically when solving exercises, as well as increase his ability to develop and how to link data with his information to obtain a solution to the problem.	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Introduce the student to the use of mathematics in other scientific subjects and increase his ability to think logically when solving exercises, as well as increase his ability to develop and how to link data with his information to .obtain a solution to the problem
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.

C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Differential & Integration				First stage	
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1+2	2	Acknowledgment and Practical application	Drawing Functions - Drawing the Trigonometric Function and Inverse, Exponential and Logarithmic Functions and Their Relationship with Each Other - Maximum and Minor Limits and	theoretical	Quizes+Reports

			Inflection Points - Alignments		
3+4	2	Acknowledgment and Practical application	Ends - the goal of algebraic and trigonometric functions - applications to ends	theoretical	Quizes+Reports
5+6	2	Acknowledgment and Practical application	Integration - laws and its relationship to differentiation - definite and indefinite complementarity	theoretical	Quizes+Reports
7+8	2	Acknowledgment and Practical application	Applications of integration - the area under the two curves and between two curves - the approximate area using the trapezoidal rule and Simpson - rotational volumes with interest in drawing according to the coordinate system.	theoretical	Quizes+Reports
9+11	2	Acknowledgment and Practical application	General methods of integration include substitution, segmentation, and use of partial, exponential and logarithmic fractions.	theoretical	Quizes+Reports
12+15	2	Acknowledgment and Practical application	Solving differential equations	theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Principles of Computer / DIE15
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	45 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Introduce the student to the calculator with an idea of its perspectives and its use in various fields and the principles of programming, and acquire a skill in using the calculator to implement programs previously prepared for application in his field of specialization.	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Introduce the student to the calculator with an idea of its perspectives and its use in various fields and the principles of programming, and acquire a skill in using the calculator to implement programs previously prepared for application in his field of specialization
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Principles of Computer			First stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1+2	3	Acknowledgment and Practical application	Auto-cad. Learn about the different program environment for the screen. Menus, screen, scroll bars, tool bars, properties Preparing a drawing sheet, opening a new file, drawing borders, drawing units - grid - jumping - storage.	Practical+ Theoretical	Quizes+Reports
3+10	3	Acknowledgment and Practical application	Learn about the different drawing commands Point, coardinafes. ... etc, Osnap accurate drawing, Dimension addition, Text and segment addition. Control drawing specifications. Blocks & Attributes, block-wblock-explode-devide-measure	Practical+ Theoretical	Quizes+Reports
11+15	3	Acknowledgment and Practical application	Windows operating system: the concept of the Windows system - its advantages - its basic requirements - the operation of the system - the components of the main desktop screen - the concept of the icon - the method of dealing with mouse activities - the importance and components of the taskbar - the use of start to enter the programs - the concept of loaded tasks - exit from the system And turn off the calculator.	Practical+ Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Computer applications/ DIE20
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	45 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Introduce the student to the calculator with an idea of its perspectives and its use in various fields and the principles of programming, and acquire a skill in using the calculator to implement programs previously prepared for application in his field of specialization.	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
B- Knowledge and Understanding Introduce the student to the calculator with an idea of its perspectives and its use in various fields and the principles of programming, and acquire a skill in using the calculator to implement programs previously prepared for application in his field of specialization
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Computer applications		First stage			
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1+7	3	Acknowledgment and Practical application	Windows operating system: the concept of the Windows system - its advantages - its basic requirements - the operation of the	Practical+ Theoretical	Quizes+Reports

			system - the components of the main desktop screen - the concept of the icon - the method of dealing with mouse activities - the importance and components of the taskbar - the use of start to enter the programs - the concept of loaded tasks - exit from the system And turn off the calculator.		
8+12	3	Acknowledgment and Practical application	The concept of the window for any program and identifying its main components - dealing with desktop icons such as (My computer- my Documents- Recycle Bin)	Practical+ Theoretical	Quizes+Reports
	3	Acknowledgment and Practical application	Knowing the components of my computer in terms of disks - folders and file and how to deal with formatting floppy disks - copying folders and files - making use of cutting and pasting and knowing the properties of disks, folders and files - dealing with the trash and how to delete and retrieve files through what the trash can provides in this aspect.	Practical+ Theoretical	Quizes+Reports
	3	Acknowledgment and Practical application	Take advantage of control panel programs such as the mouse icon - and others to change the desktop background, control the screen saver, change the appearance and colors of windows menus - and add and delete programs icon.	Practical+ Theoretical	Quizes+Reports
	3	Acknowledgment and Practical application	Take advantage of the RUN option in executing programs	Practical+ Theoretical	Quizes+Reports

			directly, as well as switching to the MS-DOS operating system signal and dealing with its commands.		
	3	Acknowledgment and Practical application	Using entertainment programs such as window media player to play movies.	Practical+ Theoretical	Quizes+Reports
	3	Acknowledgment and Practical application	Take advantage of additional programs such as the calculator Dealing with the drawing program in creating, saving and retrieving drawings through the commands it provides. Dealing with the notes window in writing, saving, retrieving and printing texts and changing its typography and formatting. Learn how to get help and its various methods	Practical+ Theoretical	Quizes+Reports
13+15	3	Acknowledgment and Practical application	The concept of computer virus - how to infect - its types - and treatment - and dealing with it through anti-software programs available within the environment of the Windows operating system.	Practical+ Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Engineering Drawing / DIE16
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	45 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Familiarizing students with the basic principles of drawing and increasing their ability to understand dimensions and measurements, and the ability to analyze shapes	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Familiarizing students with the basic principles of drawing and increasing their ability to understand dimensions and measurements, and the ability to analyze shapes
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives

Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Engineering Drawing			First stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	3	Acknowledgment and Practical application	Drawing Engineering and industrial drawing - Drawing tools and their use in drawing Vertical static image - Drawing dimensions - Drawing data table - Image, line and	practical	Quizes+Reports

			surface definitions.		
2	3	Acknowledgment and Practical application	Drawing line types: straight line, hidden line, center line, cutting line, cutting line for small parts, cutting line for large parts, cutting plane line, dimension line and extension line (painting drawing).	practical	Quizes+Reports
3	3	Acknowledgment and Practical application	Another painting on lines includes a group of simple geometric shapes and contains a group of lines.	practical	Quizes+Reports
4	3	Acknowledgment and Practical application	Explanation of electrical and electronic symbols	practical	Quizes+Reports
5	3	Acknowledgment and Practical application	Drawing of electrical and electronic symbols panel	practical	Quizes+Reports
6	3	Acknowledgment and Practical application	Writing Latin letters and numbers - a board that includes writing numbers and letters in a vertical and then tilted angle at 575 in the size of four mm to ten mm.	practical	Quizes+Reports
7	3	Acknowledgment and Practical application	Continuation of the previous painting	practical	Quizes+Reports
8	3	Acknowledgment and Practical application	How to distribute and install measuring devices (ammeter - voltmeter - wattmeter), protective devices (separators - fuses - cutting devices - circuit breakers - switches).	practical	Quizes+Reports
9	3	Acknowledgment and Practical application	Geometric operations include: 1 - dividing a straight line in equal and unequal proportions 2 - dividing a straight line 3 - establishing a column on a line or an arc from a point inside and outside it 4 - drawing a straight line	practical	Quizes+Reports

			parallel to a known line at a known distance 5 - bisection of an angle 6 - finding the center of a known arc or circle 7 - drawing a circle touching The sides of a floating triangle inside and out (one panel drawing).		
10	3	Acknowledgment and Practical application	Drawing the tangents of the circle: 1- Drawing an arc touching two circles known from the inside 2- Drawing an arc touching two circles known from the outside 3- Drawing a straight line that touches two circles known from the outside 5- Drawing an arc of a known radius that touches a straight line and a known circle.	practical	Quizes+Reports
11	3	Acknowledgment and Practical application	Drawing a regular polygon given the length of the side in the general method, drawing a regular pentagon given the diameter of the circle, drawing a regular hexagon given the diameter of the circle - drawing a circle's perspective at an angle of 30.	practical	Quizes+Reports
12	3	Acknowledgment and Practical application	Electrical installations - Drawing a special board for electrical installations for a room with an attached storeroom.	practical	Quizes+Reports
13	3	Acknowledgment and Practical application	Drawing a painting of the complete connections of the fluorescent tube	practical	Quizes+Reports
14	3	Acknowledgment and Practical application	Draw an electronic circuit board containing a group of electronic circuits.	practical	Quizes+Reports

15	3	Acknowledgment and Practical application	Draw a simple hologram at angle 30 and angle 45.	practical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Electrical Drawing / DIE21
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	45 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Familiarizing students with the basic principles of drawing and increasing their ability to understand dimensions and measurements, and the ability to analyze shapes	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
B- Knowledge and Understanding Familiarizing students with the basic principles of drawing and increasing their ability to understand dimensions and measurements, and the ability to analyze shapes
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute

Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Electrical Drawing			First stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	3	Acknowledgment and Practical application	Explaining the dimensions of the drawing in a geometric way, drawing a painting that includes two perspectives with all dimensions in a geometric way.	practical	Quizes+Reports
2	3	Acknowledgment and Practical application	Drawing complex perspective that contains cylindrical shapes or cavities - drawing a painting that includes two perspectives with writing the dimensions in a geometric way.	practical	Quizes+Reports
3	3	Acknowledgment and Practical application	Supplement the previous topic with a panel drawing.	practical	Quizes+Reports
4	3	Acknowledgment and Practical application	Drawing of an electronic circuit board containing gates Gates.	practical	Quizes+Reports
5	3	Acknowledgment and Practical application	Drawing of an electronic circuit board containing	practical	Quizes+Reports

			integrated circuits		
6	3	Acknowledgment and Practical application	Drawing of an electronic circuit board containing gates and integrated circuits	practical	Quizes+Reports
7	3	Acknowledgment and Practical application	Applications for drawing projections from different perspectives.	practical	Quizes+Reports
8	3	Acknowledgment and Practical application	Draw perspective from the three projections	practical	Quizes+Reports
9	3	Acknowledgment and Practical application	Cutting in objects, angle of cutting - cutting lines (marking). Definition of unbroken parts (focusing on complete cutting only). Panel that includes projections after cutting.	practical	Quizes+Reports
10	3	Acknowledgment and Practical application	Drawing board to control the speed of a three-phase motor	practical	Quizes+Reports
11	3	Acknowledgment and Practical application	How to read a map or a set of maps for electrical circuits.	practical	Quizes+Reports
12	3	Acknowledgment and Practical application	Electrocardiogram applications on an electronic calculator.	practical	Quizes+Reports
13	3	Acknowledgment and Practical application	Using the Auto CAD system.	practical	Quizes+Reports
14+15	3	Acknowledgment and Practical application	Use of the orcad system.	practical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Human Rights / DIE18
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	30 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Identify the principles of human rights and democracy (emergence and development)	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Identify the principles of human rights and democracy (emergence and development)
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Human Rights			First stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	2	Acknowledgment and Practical application	Human rights - their definition - their goals	theoretical	Quizes+Reports
2	2	Acknowledgment and Practical application	The Roots and Development of Human Rights in Human History - Human Rights in Antiquity and the	theoretical	Quizes+Reports

			Middle Ages.		
3	2	Acknowledgment and Practical application	Human rights in ancient civilizations, especially the Mesopotamian civilization.	theoretical	Quizes+Reports
4	2	Acknowledgment and Practical application	Kansan rights in the divine laws with a focus on human rights in Islam.	theoretical	Quizes+Reports
5	2	Acknowledgment and Practical application	Medieval human rights: human rights in doctrines, schools, and political theoreticals - human rights in corporations and their declarations, revolutions and constitutions (English documents - American Revolution - French Revolution - Russian Revolution)	theoretical	Quizes+Reports
6	2	Acknowledgment and Practical application	Human Rights in Contemporary and Modern History - International recognition of human rights since the First World War and disobedience - the United Nations)	theoretical	Quizes+Reports
7	2	Acknowledgment and Practical application	Regional recognition of human rights - European Convention on Human Rights 1950 - American Convention on Human Rights 1969 - African Charter on Human Rights 1981 - Arab Charter on Human Rights 1994.	theoretical	Quizes+Reports
8	2	Acknowledgment and Practical application	Non-governmental organizations and human rights (International	theoretical	Quizes+Reports

			Committee of the Red Cross - Amnesty International - Human Rights Watch)		
9	2	Acknowledgment and Practical application	National human rights organizations	theoretical	Quizes+Reports
10	2	Acknowledgment and Practical application	Human rights in Iraqi constitutions between theoretical and reality	theoretical	Quizes+Reports
11+12	2	Acknowledgment and Practical application	The relationship between human rights and public freedoms: - In the Universal 1 Declaration of Human Rights. In -2 -1 regional charters and national constitutions .	theoretical	Quizes+Reports
13	2	Acknowledgment and Practical application	Essential human rights and collective human rights.	theoretical	Quizes+Reports
14	2	Acknowledgment and Practical application	Economic, social and cultural human rights, civil and political human rights	theoretical	Quizes+Reports
15	2	Acknowledgment and Practical application	Modern human rights: facts in development - the right to a clean environment - the right to true solidarity.	theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Democracy/ DIE22
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	30 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Identify the principles of human rights and democracy (emergence and development)	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
B- Knowledge and Understanding Identify the principles of human rights and democracy (emergence and development)
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Democracy			First stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	2	Acknowledgment and Practical application	Guarantees of respect and protection of human rights at the national level - guarantees in the constitution and laws - guarantees in the principle of rule of law	theoretical	Quizes+Reports
2	2	Acknowledgment and Practical application	Guarantees in constitutional oversight - and guarantees for freedom of the press - Public opinion - The role of NGOs in respecting and protecting human rights.	theoretical	Quizes+Reports
3+4	2	Acknowledgment and Practical application	Guarantees, respect and protection of human rights at the international level: - The role of the United Nations and its specialized agencies in providing guarantees.	theoretical	Quizes+Reports
5	2	Acknowledgment and Practical application	The role of regional organizations - (Arab League - European Union - African Union - Organization of American States - ASEAN)	theoretical	Quizes+Reports
6	2	Acknowledgment and Practical application	The general theoreticals of freedoms - the origin of rights and freedoms - the project's position on the rights and freedoms proclaimed - the use of the term	theoretical	Quizes+Reports

			public freedoms.		
7+8	2	Acknowledgment and Practical application	The functional nature of the concept of public freedoms: the philosophical considerations of the functional right - the structural considerations of the positive right - the economic considerations and public freedoms.	theoretical	Quizes+Reports
9	2	Acknowledgment and Practical application	The legitimate base for the rule of law	theoretical	Quizes+Reports
10	2	Acknowledgment and Practical application	Regulating public freedoms by public authorities	theoretical	Quizes+Reports
11	2	Acknowledgment and Practical application	Litigation or non-judicial grievance	theoretical	Quizes+Reports
12	2	Acknowledgment and Practical application	Judicial Challenge - Determine the state's responsibility for its legitimate enforcement	theoretical	Quizes+Reports
13	2	Acknowledgment and Practical application	The effect of duplication of eliminating public freedoms Public freedoms under administrative jurisprudence	theoretical	Quizes+Reports
13	2	Acknowledgment and Practical application	Equality: the historical development of the concept of equality	theoretical	Quizes+Reports
14	2	Acknowledgment and Practical application	The recent development of the idea of equality	theoretical	Quizes+Reports
15	2	Acknowledgment and Practical application	gender equality Equality between individuals according to their beliefs and their member.	theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Electronic Workshops/ DIE24
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Identify the electronic boards and deal with them and give the students experience and mastery of working with them	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Identify the electronic boards and deal with them and give the students experience and mastery of working with them.
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Electronic Workshops			First stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	How to use the different measuring devices in the workshop such as (avometer, oscilloscope, power supply, ...).	practical	Quizes+Reports
2	4	Acknowledgment and Practical application	How to use caustics - Types of irons used in the workshop - Training in caustic welding.	practical	Quizes+Reports
3	4	Acknowledgment and Practical application	How to use soldering absorbent caustics - the number of soldering removers such as solder sucker, older remover, training on some electronic components and placing them in the printed plate, caustics used in welding integrated electronic circuits - the correct method for welding ICs - How to remove solder from the terminals of an electronic circuit and remove it from the circuit.	practical	Quizes+Reports
4	4	Acknowledgment and Practical application	Different printed electronic circuits - Learn how to perforate them and attach the various electronic components to them.	practical	Quizes+Reports
5	4	Acknowledgment and Practical application	The different types of resistors in terms of the material of the resistors - the power that each resistance bears - How to read the values of the resistors in different ways - The variable and special resistors	practical	Quizes+Reports

			(VDR, PTC, NTC) and how to check it.		
6	4	Acknowledgment and Practical application	Make a circuit to connect the resistors in series / Make a circuit to connect the resistors in parallel Make a circuit to connect the resistors in series and parallel within the circuit	practical	Quizes+Reports
7	4	Acknowledgment and Practical application	The different types of capacitors in terms of the type of dielectric used between their panels and the voltage they bear - reading the values of capacitors in different ways - how to check capacitors and methods of switching them - making circuits to connect the capacitors in series, parallel and mixed connection on the printed plate with examination.	practical	Quizes+Reports
8	4	Acknowledgment and Practical application	The different types of switches used in electronic devices and their inspection methods - the current that each switch carries - the use of each type. Types of fuses used in electronic circuits - Types and diameters of wires used in fuses - Current that each type carries - How to repair fuses.	practical	Quizes+Reports
9	4	Acknowledgment and Practical application	Files - their types - methods of checking them - their uses - identifying faults and reading file types that use color coding and numbering. Electrical transformers - types - methods of examination - determination of the type of transformer autotransformer - the	practical	Quizes+Reports

			difference between autotransformers and ordinary transformers.		
10	4	Acknowledgment and Practical application	The different types of semiconductors (diode, transistor, etc.) in terms of how they are manufactured, the materials used in their manufacture, the methods of numbering them and finding their equivalents.	practical	Quizes+Reports
11	4	Acknowledgment and Practical application	Checking semiconductors (diode, transistor, etc.) that are idle and valid for a group of them.	practical	Quizes+Reports
12	4	Acknowledgment and Practical application	Integrated Circuits - Identifying the numbering of the terminals for several types of these circuits - How to manufacture these circuits - The components involved in manufacturing.	practical	Quizes+Reports
13	4	Acknowledgment and Practical application	A scientific film about how electronic components are made (resistors, capacitors, transistors, ... etc).	practical	Quizes+Reports
14	4	Acknowledgment and Practical application	How to read electronic maps and follow circuits to determine the location of the malfunction and its causes.	practical	Quizes+Reports
15	4	Acknowledgment and Practical application	The student learned how to design electronic circuits on the board and install electronic components on it - how to solder these components on the board (simple circuit).	practical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Electrical Workshops/ DIE25
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Identify the electronic boards and deal with them and give the students experience and mastery of working with them	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
B- Knowledge and Understanding Identify the electronic boards and deal with them and give the students experience and mastery of working with them.
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Electrical Workshops			First stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	Repetition of previous work by the student designing a more complex circuit.	practical	Quizes+Reports
2	4	Acknowledgment and Practical application	Faulty semiconductor-transistor and diode check for a combination of them.	practical	Quizes+Reports
3	4	Acknowledgment and Practical application	A field visit to one of the industrial establishments in the socialist sector.	practical	Quizes+Reports
4	4	Acknowledgment and Practical application	Building complex and simple electronic circuits on printed boards and knowing how to check and test them, such as a filter circuit.	practical	Quizes+Reports
5	4	Acknowledgment and Practical application	Building a uniform half-wave circuit on the printed board and knowing how to inspect and test it.	practical	Quizes+Reports
6	4	Acknowledgment and Practical application	Building a full wave circuit on the printed board and knowing how to inspect and test it.	practical	Quizes+Reports
7	4	Acknowledgment and Practical application	Building a full wave voltage multiplier circuit on the printed board and knowing how to inspect and test it.	practical	Quizes+Reports
8	4	Acknowledgment and Practical application	Building the clippers circuit on the printed board and identifying how to check and test it.	practical	Quizes+Reports
9	4	Acknowledgment and Practical application	Using the Zener Diode as a voltage regulator circuit on the printed board and learning how to check and test it.	practical	Quizes+Reports
10	4	Acknowledgment and Practical	Building a transistor amplifier circuit on a printed board and	practical	Quizes+Reports

		application	knowing how to check and test it (build a practical common .emitter amplifier circuit		
11	4	Acknowledgment and Practical application	Building a two-stage amplifier circuit on the printed board and knowing how to inspect .and test it	practic al	Quizes+Reports
12	4	Acknowledgment and Practical application	Building a push-pull amplifier circuit on the printed board and knowing how to check .and test it	practic al	Quizes+Reports
13	4	Acknowledgment and Practical application	Building a RC Oscillator circuit on printed board and knowing how to .inspect and test it	practic al	Quizes+Reports
14	4	Acknowledgment and Practical application	Building a Hartley circuit on a flip chart and learning how to inspect .and test it	practic al	Quizes+Reports
15	4	Acknowledgment and Practical application	Build a variable DC voltage supply circuit on the printed board and learn how to check and .test it	practic al	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Factories (1)/ DIE19

4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Identify the electronic boards and deal with them and give the students experience and mastery of working with them	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
C- Knowledge and Understanding Identify the electronic boards and deal with them and give the students experience and mastery of working with them.
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market

- Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Factories (1)			First stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	2	Acknowledgment and Practical application	Occupational safety - its necessity - its objectives - its impact	theoretical	Quizes+Reports
2	2	Acknowledgment and Practical application	Occupational safety in terms of its impact on the person, family, department, establishment, society and the national economy	theoretical	Quizes+Reports
3	2	Acknowledgment and Practical application	Occupational safety, why, the primary factor, law enforcement, skills preservation, the economic factor	theoretical	Quizes+Reports

4	2	Acknowledgment and Practical application	Maintenance, its objectives, the importance of advance planning, the most important types of maintenance and when to use it	theoretical	Quizes+Reports
5	2	Acknowledgment and Practical application	Maintenance regulations, comparison between them, how to perform preventive and curative systems	theoretical	Quizes+Reports
6	2	Acknowledgment and Practical application	Health and occupational safety departments formations	theoretical	Quizes+Reports
7+8	2	Acknowledgment and Practical application	Public occupational health and safety program, work site protection, work routes protection, worker protection	theoretical	Quizes+Reports
8	2	Acknowledgment and Practical application	Occupational Health and Safety Program, Specialization, Traffic Accidents Prevention, Accident Statistics	theoretical	Quizes+Reports
9	2	Acknowledgment and Practical application	Firefighting and fire equipment	theoretical	Quizes+Reports
10	2	Acknowledgment and Practical application	Causes of industrial accidents, the importance and causes of recording occupational accidents	theoretical	Quizes+Reports
11	2	Acknowledgment and Practical application	Promote concern for occupational health and safety, mechanical	theoretical	Quizes+Reports

			hazards		
12	2	Acknowledgment and Practical application	Electrical accidents, methods of preventing electrical accidents	theoretical	Quizes+Reports
13	2	Acknowledgment and Practical application	Chemical hazards, and ways to prevent chemical accidents	theoretical	Quizes+Reports
14+15	2	Acknowledgment and Practical application	Personal protective equipment	theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Factories (2)/ DIE23
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	First
7. Number of hours tuition (total)	60 hours

8. Date of production/revision of this specification	20/12/2022

9. Aims of the Course

Identify the electronic boards and deal with them and give the students experience and mastery of working with them

10· Learning Outcomes, Teaching ,Learning and Assessment Method

D- Knowledge and Understanding

Identify the electronic boards and deal with them and give the students experience and mastery of working with them.

B. Subject-specific skills

Capability to manage projects

The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1.Carry out his duties on the job site with professional motives

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

- Creating appropriate curricula with the labor market
- Holding scientific seminars and conferences aimed at updating school curricula
- Follow up on scientific developments in the field of specialization

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Factories (2)				First stage	
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	2	Acknowledgment and Practical application	Occupational safety - its necessity - its objectives - its impact	theoretical	Quizes+Reports
2	2	Acknowledgment and Practical application	Occupational safety in terms of its impact on the person, family, department, establishment, society and the national economy	theoretical	Quizes+Reports
3	2	Acknowledgment and Practical application	Occupational safety, why, the primary factor, law enforcement, skills preservation, the economic factor	theoretical	Quizes+Reports
4	2	Acknowledgment and Practical application	Maintenance, its objectives, the importance of advance planning, the most important types of maintenance	theoretical	Quizes+Reports

			and when to use it		
5	2	Acknowledgment and Practical application	Maintenance regulations, comparison between them, how to perform preventive and curative systems	theoretical	Quizes+Reports
6	2	Acknowledgment and Practical application	Health and occupational safety departments formations	theoretical	Quizes+Reports
7+8	2	Acknowledgment and Practical application	Public occupational health and safety program, work site protection, work routes protection, worker protection	theoretical	Quizes+Reports
8	2	Acknowledgment and Practical application	Occupational Health and Safety Program, Specialization, Traffic Accidents Prevention, Accident Statistics	theoretical	Quizes+Reports
9	2	Acknowledgment and Practical application	Firefighting and fire equipment	theoretical	Quizes+Reports
10	2	Acknowledgment and Practical application	Causes of industrial accidents, the importance and causes of recording occupational accidents	theoretical	Quizes+Reports
11	2	Acknowledgment and Practical application	Promote concern for occupational health and safety, mechanical hazards	theoretical	Quizes+Reports
12	2	Acknowledgment and Practical application	Electrical accidents, methods of preventing electrical accidents	theoretical	Quizes+Reports
13	2	Acknowledgment and Practical application	Chemical hazards, and ways to prevent chemical accidents	theoretical	Quizes+Reports
14+15	2	Acknowledgment and Practical application	Personal protective equipment	theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Communication(1)/ EOTO213
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Scientifically qualifying the graduate in the field of electronics and electricity by introducing the basic scientific concepts related to engineering and harnessing them in this field and pushing students towards scientific research outside the framework of the school curriculum	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Scientifically qualifying the graduate in the field of electronics and electricity by introducing the basic scientific concepts related to engineering and harnessing them in this field and pushing students towards scientific research outside the framework of the school curriculum -

B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	

Minimum number of students	
Maximum number of students	

Communication(1)			second stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	Filters - BSF ((RC)) - (LPF) - (HPF) - (BPF)	Practical+Theoretical	Quizes+Reports
2	4	Acknowledgment and Practical application	Active Filters (BSF): - LPF) - (HPF) - (BPF	Practical+Theoretical	Quizes+Reports
3	4	Acknowledgment and Practical application	Modulation - its meaning - its types - modulation .(AM) vector analysis	Practical+Theoretical	Quizes+Reports
4	4	Acknowledgment and Practical application	Frequency Spectrum - Power Distribution - Calculation of equivalent .modulation factor	Practical+Theoretical	Quizes+Reports
5	4	Acknowledgment and Practical application	Types of modulated amplitude (AM) with its frequency spectrum	Practical+Theoretical	Quizes+Reports
6	4	Acknowledgment and Practical application	Inline types used to generate (AM) Balanced Inline - Loop Inline - Coin Inline - Other .Inclusions	Practical+Theoretical	Quizes+Reports
7	4	Acknowledgment and Practical application	AM - Envelope Detector - Synchronous Detector - (AGC)	Practical+Theoretical	Quizes+Reports
8	4	Acknowledgment and Practical application	Mass diagram of the amplitude embedded wave transmitter and receiver - comparative parameters of the amplitude of the receivers (sensitivity - selectivity - quality - .distortion)	Practical+Theoretical	Quizes+Reports
9	4	Acknowledgment and Practical application	Frequency modulation (FM) modulation (PM) - mathematical analysis of inline waves - modulation ratio -	Practical+Theoretical	Quizes+Reports

			.frequency deviation		
10	4	Acknowledgment and Practical application	Transmission bandwidth and modulation bandwidth (PM) and .(FM)	Practical+Theoretical	Quizes+Reports
11	4	Acknowledgment and Practical application	FM modulation and generation methods - direct method, indirect method frequency modulation amplified (Secttreo FM) - Stero	Practical+Theoretical	Quizes+Reports
12	4	Acknowledgment and Practical application	Detection for (FM) Signal - Relative Detector - Fostersley .Method	Practical+Theoretical	Quizes+Reports
13	4	Acknowledgment and Practical application	Quantization - Theoretical Quantization - Transformation .Encoding	Practical+Theoretical	Quizes+Reports
14	4	Acknowledgment and Practical application	Modulation (PM) - pulse modulation features - types (PCM) - (PPM) - .(PDM) - (PAM)	Practical+Theoretical	Quizes+Reports
15	4	Acknowledgment and Practical application	Distribution (Multiplexing) - (FDM) - .(TDM)	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute

2. University Department/Centre	Electronic Techniques
3. Course title/code	Communication(2)/ EOTO220
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Scientifically qualifying the graduate in the field of electronics and electricity by introducing the basic scientific concepts related to engineering and harnessing them in this field and pushing students towards scientific research outside the framework of the school curriculum	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Scientifically qualifying the graduate in the field of electronics and electricity by introducing the basic scientific concepts related to engineering and harnessing them in this field and pushing students towards scientific research outside the framework of the school curriculum -
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Communication(2)			Second stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	Digital modulation PSK-.FSK-ASK	Practical+Theoretical	Quizes+Reports
2	4	Acknowledgment and Practical application	Transmission information and system capacity-error (SNR) signal-to-noise ratio	Practical+Theoretical	Quizes+Reports
3	4	Acknowledgm	Cell phones -	Practical+Th	Quizes+Repo

		ent and Practical application	Frequencies used - Techniques used (FDMA) - (TDMA) - .(CDMA)	eoretical	rts
4	4	Acknowledgment and Practical application	Teleprinters - radio .telegraph transmitters	Practical+Theoretical	Quizes+Reports
5	4	Acknowledgment and Practical application	(FaximileTransmission) - (Fas-Receiver) - (Telex)	Practical+Theoretical	Quizes+Reports
6	4	Acknowledgment and Practical application	Optical fibers - types - characteristics - sending .and receiving	Practical+Theoretical	Quizes+Reports
7	4	Acknowledgment and Practical application	Types of antennas - basics of antennas - .antenna parameters	Practical+Theoretical	Quizes+Reports
8	4	Acknowledgment and Practical application	Spread of radio waves (terrestrial - celestial - waves .Line of sight	Practical+Theoretical	Quizes+Reports
9	4	Acknowledgment and Practical application	Vertical antennas - Fright rod antennas - UHF antennas are micro .and horn antennas	Practical+Theoretical	Quizes+Reports
10	4	Acknowledgment and Practical application	Use of microwaves in .communications	Practical+Theoretical	Quizes+Reports
11	4	Acknowledgment and Practical application	Satellite Communications - Features and Characteristics - Transmission and Receive - Earth Stations - Satellite Orbits - .Multiple Access	Practical+Theoretical	Quizes+Reports
12	4	Acknowledgment and Practical application	Microwaves - Generation - Frequency .Spectrum	Practical+Theoretical	Quizes+Reports
13	4	Acknowledgment and Practical application	Mobile - Introduction - Technologies used - The most important considerations in transmission - Shadow - Interference - Noise. - Transferring signals	Practical+Theoretical	Quizes+Reports

			wirelessly - wirelessly (and wirelessly - wired)		
14	4	Acknowledgment and Practical application	GSM networks; Functions and structural	Practical+Theoretical	Quizes+Reports
15	4	Acknowledgment and Practical application	Thuraya - Thuraya services - Thuraya features - SMS - Thuraya uses - Geographical areas for network service .coverage	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Electronic Circuits(1)/ EOTO210
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022

9. Aims of the Course
Building practical electronic circuits and studying their properties and applications Identify the development of the student's ability to identify the error in connecting electronic circuits

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Building practical electronic circuits and studying their properties and applications Identify the development of the student's ability to identify the error in .connecting electronic circuits
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Electronic Circuits(1)			Second stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1+3	4	Acknowledgment and Practical application	Class A power amplifiers Class B power amplifiers Class C . power amplifiers	Practical+Theoretical	Quizes+Reports
4	4	Acknowledgment and Practical application	Power supplies	Practical+Theoretical	Quizes+Reports
5	4	Acknowledgment and Practical application	Voltage regulators using variable resistance, zener diode, series and parallel transistor, darlinkton	Practical+Theoretical	Quizes+Reports
6	4	Acknowledgment and Practical application	thyristor firing methods thyristor	Practical+Theoretical	Quizes+Reports

			switching methods gate circuit (AC), (DC), pulses, applications of silicon modules		
7+8	4	Acknowledgment and Practical application	Oscillators and their definition - backfeed and their types with drawing their diagrams and finding the mathematical relationships for the final amplification of the system (front gain - back gain - return circuit) - oscillation conditions - examples of oscillator circuits (LC oscillator - Hartley oscillator - Coulps oscillator - phase shift oscillator)	Practical+Theoretical	Quizes+Reports
9+11	4	Acknowledgment and Practical application	Transistor as a switch - Specifications of its work on the load line - Its response to a rectangular input wave Transformation times - Vibrators and their different types (monostable unstable - bistable) Mathematical relationships -	Practical+Theoretical	Quizes+Reports

			Collector and base resistors - Waveforms of input and output Circuits - Mug - The idea of their operation - Protection - Overcoming Possible distortions in the output signals - Pulse Width Control.		
12+13	4	Acknowledgment and Practical application	Operational amplifier - typical scheme - template input - non-template input - input impedance - template amplifier circuit output - non-template amplifier circuit gain - voltage function and amplification equation - host - formula for adding N number of inputs - non-template host.	Practical+Theoretical	Quizes+Reports
14+15	4	Acknowledgment and Practical application	Inverter collector circuit and output equation - non-inverter collector circuit and output equation - arithmetic examples.	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Electronic Circuits(2)/ EOTO217
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Building practical electronic circuits and studying their properties and applications Identify the development of the student's ability to identify the error in connecting electronic circuits	

10· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Knowledge and Understanding

Building practical electronic circuits and studying their properties and applications

Identify the development of the student's ability to identify the error in .connecting electronic circuits

B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	

Minimum number of students	
Maximum number of students	

Electronic Circuits(2)		Second stage			
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	Subtractor circuit and arithmetic equations for subtracting input voltage VO = V2-V1 - applied circuit	Practical+Theoretical	Quizes+Reports
2+3	4	Acknowledgment and Practical application	Operations amplifier applications - the integrator circuit - deriving its equation - example - inserting a square wave into the integrator circuit and finding the output wave for it - example - inserting a pulse wave into the integrator circuit and finding the output wave - example - the effect of the voltage of the integrator - solving exercises.	Practical+Theoretical	Quizes+Reports
4	4	Acknowledgment and Practical application	Comparator - its circuit - business idea - inserting a triangular wave into the	Practical+Theoretical	Quizes+Reports

			template input and connecting the non-template input to the ground - inserting a triangular wave into the template input and linking the non-template input to a positive reference voltage		
5	4	Acknowledgment and Practical application	Nonlinear applications of the operation amplifier - the example rectifier - the idea of using the operation amplifier in rectifying circuits - its advantages over the circuits without the operation amplifier - a comparison between the ideal and non-ideal properties of the rectifier - the half-wave ideal rectifier circuit - the idea of its work - the perfect rectifier circuit full-wave - the business idea.	Practical+Theoretical	Quizes+Reports
6	4	Acknowledgment and Practical application	Schmidt firing pin - False shift in comparator and how to prevent it from happening - Example - Schmidt goblet circuit Drawing its switching	Practical+Theoretical	Quizes+Reports

			properties - Example - introducing a random wave into a Schmidt trigger circuit and drawing output voltage - Solving exercises		
7	4	Acknowledgment and Practical application	Wave generators using a process amplifier - square wave generator - its circuit - derive the equation for the output wave frequency - Modulate the circuit to give a rectangular wave - an example - circuit design.	Practical+Theoretical	Quizes+Reports
8	4	Acknowledgment and Practical application	Stable single-circuit vibrating pulse generator - business idea - waveform - derivation of the equation for output pulse width - example - design - circuit.	Practical+Theoretical	Quizes+Reports
9	4	Acknowledgment and Practical application	Triangle wave generator - the circuit - business idea - drawing waves - deriving the equations for that - deriving the frequency equation for the output wave.	Practical+Theoretical	Quizes+Reports

10+11	4	Acknowledgment and Practical application	Analog calculator - its design - solved examples - 555 timer - its construction - diagrams for its use in vibrators - equations for calculating the pulse width time - solved examples.	Practical+Theoretical	Quizes+Reports
12	4	Acknowledgment and Practical application	Effective RC Filters - Their Advantages - Properties - - HPF-LPF- (Features- properties- equations- response curves- arithmetic examples)	Practical+Theoretical	Quizes+Reports
13	4	Acknowledgment and Practical application	Active RC Filters - - BSFBPF - Advantages - Features - - (Features - properties - equations - response curves - arithmetic examples	Practical+Theoretical	Quizes+Reports
14	4	Acknowledgment and Practical application	Basic Methods for Manufacturing Integrated Circuits (Single-crystal-Thin- and Thick-Film)	Practical+Theoretical	Quizes+Reports
15	4	Acknowledgment and Practical application	Manufacturing an integrated circuit for NPN transistor - Manufacturing	Practical+Theoretical	Quizes+Reports

			integrated resistors and capacitors - Manufacturing an integrated circuit for a simple electronic circuit.		

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Measurements Devices (1)/ EOTO212
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Interested in studying the types of devices used for continuous and alternating electrical measurements	

10· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Knowledge and Understanding Interested in studying the types of devices used for continuous and .alternating electrical measurements
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet

13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Measurements Devices (1)			Second stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	Familiarity with laboratory equipment	Practical+Theoretical	Quizes+Reports
2	4	Acknowledgment and Practical application	errors in measurements	Practical+Theoretical	Quizes+Reports
3	4	Acknowledgment and Practical application	Calvanometer sensitivity measurement	Practical+Theoretical	Quizes+Reports
4	4	Acknowledgment and Practical application	Measurement of the internal resistance of the moving coil galvanometer by the voltage divider method	Practical+Theoretical	Quizes+Reports
5	4	Acknowledgment and Practical application	Measurement of the internal resistance of the moving coil galvanometer by the mid-scaling method	Practical+Theoretical	Quizes+Reports
6	4	Acknowledgment and Practical application	series ohmmeter	Practical+Theoretical	Quizes+Reports
7	4	Acknowledgment and Practical application	Ohmmeter parallel	Practical+Theoretical	Quizes+Reports
8	4	Acknowledgment and Practical application	DC test bridge for measuring unknown resistance	Practical+Theoretical	Quizes+Reports
9	4	Acknowledgment and Practical application	A direct current bridge to measure the internal resistance of a galvanometer	Practical+Theoretical	Quizes+Reports
10	4	Acknowledgment	Double Kelvin	Practical+Theoretical	Quizes+Reports

		and Practical application	DC bridge		
11	4	Acknowledgment and Practical application	DC ammeter and extend its range	Practical+Theoretical	Quizes+Reports
12	4	Acknowledgment and Practical application	Dual beam oscilloscope	Practical+Theoretical	Quizes+Reports
13	4	Acknowledgment and Practical application	Digital oscilloscope calibration	Practical+Theoretical	Quizes+Reports
14	4	Acknowledgment and Practical application	Digital voltmeter calibration using OCD	Practical+Theoretical	Quizes+Reports
15	4	Acknowledgment and Practical application	DC voltmeter, extending its range.	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Measurements Devices (2)/ **EOTO219**
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory

6. Semester/Year	Second
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Interested in studying the types of devices used for continuous and alternating electrical measurements	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Interested in studying the types of devices used for continuous and .alternating electrical measurements
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization
12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Measurements Devices (2)			Second stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	Using an ohmmeter - (voltmeter) to measure the unknown resistance	Practical+Theoretical	Quizes+Reports
2	4	Acknowledgment and Practical application	Effect of load on voltmeter measurement	Practical+Theoretical	Quizes+Reports
3	4	Acknowledgment and Practical application	Effect of load on voltmeter measurement	Practical+Theoretical	Quizes+Reports
4	4	Acknowledgment and Practical application	Measurement of amplitude and frequency by oscilloscope	Practical+Theoretical	Quizes+Reports
5	4	Acknowledgment and Practical application	Constant voltage measurement by plotting	Practical+Theoretical	Quizes+Reports
6	4	Acknowledgment and Practical application	Use a signal generator with an oscilloscope	Practical+Theoretical	Quizes+Reports
7	4	Acknowledgment	Design and	Practical+Theoretical	Quizes+Reports

		and Practical application	analysis of the main circuit of the signal generator		
8	4	Acknowledgment and Practical application	Maxoy bridge for alternating current, unknown resistance and inductance	Practical+Theoretical	Quizes+Reports
9	4	Acknowledgment and Practical application	An alternating current bridge for measuring an unknown capacitive capacitance	Practical+Theoretical	Quizes+Reports
10	4	Acknowledgment and Practical application	A bridge of alternating current to measure the unknown frequency	Practical+Theoretical	Quizes+Reports
11	4	Acknowledgment and Practical application	Winn gantry of alternating current to measure unknown capacitance	Practical+Theoretical	Quizes+Reports
12	4	Acknowledgment and Practical application	Gantry of alternating current to measure inductance	Practical+Theoretical	Quizes+Reports
13	4	Acknowledgment and Practical application	Measurement of phase angle using lysagos shapes	Practical+Theoretical	Quizes+Reports
14	4	Acknowledgment and Practical application	thermocouple	Practical+Theoretical	Quizes+Reports
15	4	Acknowledgment and Practical application	thermistor resistance	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Microcomputers (1)/ EOTO211
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Training students in the use of microcomputer keys and writing and implementing machine language programs	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Training students in the use of microcomputer keys and writing and implementing machine language programs

B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	

Minimum number of students	
Maximum number of students	

Microcomputers (1)			Second stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	Introducing the vocabulary of the subject and the distribution of exam grades - numerical systems - the decimal system - the binary system - the octal system - the hexadecimal system and its importance for microcomputers - conversions between systems.	Practical+Theoretical	Quizes+Reports
2	4	Acknowledgment and Practical application	Introducing microcomputers, their types, and their relationship to other electronic computers.	Practical+Theoretical	Quizes+Reports
3	4	Acknowledgment and Practical application	Definitions of microcomputer terms: bit-byte-nibble-word-instruction-program-software-structures-high-level languages-low-level languages-assembly language-machine language.	Practical+Theoretical	Quizes+Reports
4	4	Acknowledgment and Practical	Microcomputer architecture - block diagram -	Practical+Theoretical	Quizes+Reports

		application	input unit - keyboard - mouse - two types of mouse and comparison between them - input port		
5	4	Acknowledgment and Practical application	The transmission system - the data carrier - the address carrier - the lines of control and control - the benefit of each - a comparison between them.	Practical+Theoretical	Quizes+Reports
6	4	Acknowledgment and Practical application	Output unit - screen - the difference between computer screen and TV screen - output port.	Practical+Theoretical	Quizes+Reports
7	4	Acknowledgment and Practical application	Memory - main memory - read only memory - read and write memory - a comparison between them - auxiliary memories and the difference between them and the main memory.	Practical+Theoretical	Quizes+Reports
8	4	Acknowledgment and Practical application	CPU - Microprocessor - Definition - Block diagram showing the architecture of the microprocessor - Microprocessor 8085 - Terminal and block diagram for it - Data	Practical+Theoretical	Quizes+Reports

			carrier bumpers - Address bus bumpers and a comparison between them.		
9	4	Acknowledgment and Practical application	General records - A record (accumulator) - arithmetic and logic unit - flags register - microprocessor notification 8085 - arithmetic example for determining the status of each flag and interpretation of the case - the utility of the flags record.	Practical+Theoretical	Quizes+Reports
10	4	Acknowledgment and Practical application	Z-80 Microprocessor Notification and Comparison with 8085 Microprocessor Notification - Mathematical Example - PC Program Counter - SP Stack Indicator - Instruction Log - Command Decoder - Control Unit	Practical+Theoretical	Quizes+Reports
11	4	Acknowledgment and Practical application	Directions of the 8085-Z80 microprocessor - the symbols used to remember - the machine language - a comparison between them - how to extract the codes in	Practical+Theoretical	Quizes+Reports

			the machine language from the instructions table.		
12	4	Acknowledgment and Practical application	Directions of the data transfer group and its types - solving examples - writing an application program.	Practical+Theoretical	Quizes+Reports
13	4	Acknowledgment and Practical application	The input and output instructions and their relationship to the data transmission group instructions - practical examples.	Practical+Theoretical	Quizes+Reports
14	4	Acknowledgment and Practical application	A set of arithmetic instructions and their types - practical examples - their use in enlarging the digital signal with an applied example.	Practical+Theoretical	Quizes+Reports
15	4	Acknowledgment and Practical application	The set of logical instructions and their types - practical examples - and their use in solving digital circuits	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Microcomputers (2)/ EOTO218
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Training students in the use of microcomputer keys and writing and implementing machine language programs	

10· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Knowledge and Understanding

Training students in the use of microcomputer keys and writing and implementing machine language programs

B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	

Minimum number of students	
Maximum number of students	

Microcomputers (2)			Second stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	4	Acknowledgment and Practical application	A group of branching notices and their types - conditional and unconditional and their reliance on flags - practical examples - the importance of this group in writing programs.	Practical+Theoretical	Quizes+Reports
2	4	Acknowledgment and Practical application	A group of control instructions - their relation to the operation keys - of what differs from the rest of the previous .instructions	Practical+Theoretical	Quizes+Reports
3	4	Acknowledgment and Practical application	Programs to perform arithmetic operations: addition - subtraction - multiplication - division - intended addressing and its types in the 8085 processor	Practical+Theoretical	Quizes+Reports
4	4	Acknowledgment and Practical application	Stages of executing a command - Instructing cycle - Machine cycle - The timing diagram for executing a command (instructing the contents of the accumulator to be stored in a memory location for example) - How the microprocessor reads data in	Practical+Theoretical	Quizes+Reports

			memory		
5	4	Acknowledgment and Practical application	Creating repetition loops - time delay loops - one loop - two loops - three loops - application programs for each.	Practical+Theoretical	Quizes+Reports
6	4	Acknowledgment and Practical application	Generating pulses at a required frequency and known duty cycle compared to pulse generators using integrated circuits.	Practical+Theoretical	Quizes+Reports
7	4	Acknowledgment and Practical application	Practical examples showing how to exploit time delay loops in the industrial and household domains.	Practical+Theoretical	Quizes+Reports
8	4	Acknowledgment and Practical application	Writing a program for an ascending counter - with a practical example.	Practical+Theoretical	Quizes+Reports
9	4	Acknowledgment and Practical application	Writing a countdown timer program - with a practical example	Practical+Theoretical	Quizes+Reports
10	4	Acknowledgment and Practical application	Writing an ascending/descending counter program - with an example application.	Practical+Theoretical	Quizes+Reports
11	4	Acknowledgment and Practical application	8086 microprocessor - specifications - architecture - edge plan.	Practical+Theoretical	Quizes+Reports
12	4	Acknowledgment and Practical application	Types of addressing for the 8086 microprocessor - data transfer instructions - multiplication and division instructions - examples of no other instructions.	Practical+Theoretical	Quizes+Reports
13	4	Acknowledgment and	Comparison of an eight-ranked	Practical+Theoretical	Quizes+Reports

		Practical application	microprocessor (such as the 8085) and a 16-ranked microprocessor (such as the 8086).		
14	4	Acknowledgment and Practical application	-order 32 microprocessors, the most prominent of which are their characteristics - the microprocessors used in the Pentium calculators.	Practical+Theoretical	Quizes+Reports
15	4	Acknowledgment and Practical application	A general review of the curriculum vocabulary	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Computer applications(1)/ EOTO215
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	45 hours

8. Date of production/revision of this specification	20/12/2022

9. Aims of the Course

Preparing qualified graduates to deal with modern laboratories and devices, including learning to use simulation programs

10· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Knowledge and Understanding

Preparing qualified graduates to deal with modern laboratories and devices, .including learning to use simulation programs

B. Subject-specific skills

Capability to manage projects

The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1.Carry out his duties on the job site with professional motives

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

- Creating appropriate curricula with the labor market
- Holding scientific seminars and conferences aimed at updating school curricula
- Follow up on scientific developments in the field of specialization

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Computer applications(1) Second stage

Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1+4	3	Acknowledgment and Practical application	Front page program for designing websites: - Learn about the concepts of the program, its benefits, specifications, features and methods of operation - Create and coordinate a page and website via the front page)) - Hyperlinking web pages Create forms on the - ((website via the Front page	Practical+Theoretical	Quizes+Reports
5+15	3	Acknowledgment and Practical application	- Excel program Getting to know the concept of the program: its benefits, specifications, features and methods of operation, getting to know the main screen and its components and containing various effective menus and tools The concept of the cell, basic data types and how to enter them How to save a worksheet and a workbook Close the program	Practical+Theoretical	Quizes+Reports

			And close the file - Opening the saved file - Entering data and performing simple math operations Learn how to adjust and format data within a single cell or Group of cells. Learn about the methods of collecting data or a group of cells in its various forms As well as how to sort the data. Using some of the - functions provided by the program, such as: AVE, SQRT, COUNT, MAX, MIN, SUM, and other useful -.statistical functions Understand the conditional function if and logical functions (and, or, not) and how to apply their equations. - Learn about the Editing process provided by the program - Copying and transferring data, and getting acquainted with the concept of copying mathematical operations and the concept of relative cells. And the absolute cells. Absolute. - Control the width of the cell and change its style and formatting through the use of tools .coordination Learn how to add, delete, freeze or hide rows and columns on the worksheet, and how to print digital data or charts. Dealing with blueprints. And how to convert digital and text data into charts of different types through the Chart wizard - Learn how to make adjustments and revisions. Presentation program (Power Point): Understand the concept and how the program works		

			Learn how to create and display slides or program slides		

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Computer applications(2)/ EOTO226
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	45 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Preparing qualified graduates to deal with modern laboratories and devices, including learning to use simulation programs	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Preparing qualified graduates to deal with modern laboratories and devices, .including learning to use simulation programs

B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	

Minimum number of students	
Maximum number of students	

Computer applications(2)			Second stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	3	Acknowledgment and Practical application	Learn about Matlab and its most important versions, and get acquainted with the program's interface and basic operations	Practical+Theoretical	Quizes+Reports
2	3	Acknowledgment and Practical application	Understanding the commands of Matlab	Practical+Theoretical	Quizes+Reports
3+4	3	Acknowledgment and Practical application	Learn how to create an m.file, arrays, vectors, and operations on them	Practical+Theoretical	Quizes+Reports
5+6	3	Acknowledgment and Practical application	Identify logical expressions in Matlab and add properties to the drawing within the program	Practical+Theoretical	Quizes+Reports
7	3	Acknowledgment and Practical application	D (2-2 Dimensional)	Practical+Theoretical	Quizes+Reports
8+9	3	Acknowledgment and Practical application	Recognizing the Loops	Practical+Theoretical	Quizes+Reports
10	3	Acknowledgment and Practical application	Introduction to simulation in Matlab	Practical+Theoretical	Quizes+Reports
11	3	Acknowledgment and Practical application	Matlab application in electronic circuits	Practical+Theoretical	Quizes+Reports
12	3	Acknowledgment and Practical application	Matlab application in analog communication - AM type	Practical+Theoretical	Quizes+Reports
13	3	Acknowledgment and Practical application	Matlab application in analog communication - FM type	Practical+Theoretical	Quizes+Reports
14	3	Acknowledgment	Matlab	Practical+Theoretical	Quizes+Reports

		and Practical application	application in digital communications - type ASK		
15	3	Acknowledgment and Practical application	Matlab application in digital communication - FSK and PSK	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Maintenance(1)/ EOTO214
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Providing students with skills in the field of maintenance of electrical appliances and equipment and training them with practical experiments on diagnosing faults	

10· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Knowledge and Understanding Providing students with skills in the field of maintenance of electrical appliances and equipment and training them with practical experiments on .diagnosing faults
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet

13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Maintenance(1)		Second stage			
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	3	Acknowledgment and Practical application	Clarify the requirements of the electronic equipment maintenance workshops and the necessary equipment and train them, review the methods of maintenance, check (with the senses - the devices and the injection of signals), industrial safety and .security	Practical	Quizes+Reports
2	3	Acknowledgment and Practical application	View the block diagram of the Super Hetrodine radio - and the printout - use the gauges to determine the .malfunction	Practical	Quizes+Reports
3	3	Acknowledgment and Practical application	Practicing the map of the Super Heterodyne radio device and determining the locations of the components - practicing the application of the device's map with the printed board and conducting the .necessary tests	Practical	Quizes+Reports
4	3	Acknowledgment and Practical application	Practicing to fix AF stage faults - malfunctions of the primary amplifier and the power	Practical	Quizes+Reports

			.amplifier		
5	3	Acknowledgment and Practical application	Training on repairing the IF-and detector stage - malfunctions of the inter-amplifier and detector - adjusting and regulating the inter-frequency .stage	Practical	Quizes+Reports
6	3	Acknowledgment and Practical application	Training in RF phase faults - mixer faults - local oscillator malfunctions	Practical	Quizes+Reports
7	3	Acknowledgment and Practical application	General malfunctions of the radio	Practical	Quizes+Reports
8	3	Acknowledgment and Practical application	Test the students with general exercises on the malfunctions of the radio	Practical	Quizes+Reports
9	3	Acknowledgment and Practical application	Identify the block diagram of a regular black and white television set - Identify the electronic units used and the complete units belonging to all stages of the .device	Practical	Quizes+Reports
10	3	Acknowledgment and Practical application	Training in reading the EIC TV map, identifying the locations of components, especially protection components and units, and applying the device map to the printed board - identifying the dangerous work areas and how to .deal with them	Practical	Quizes+Reports
11	3	Acknowledgment and Practical application	Training on the use of television testing devices with training on using the control and	Practical	Quizes+Reports

			regulation keys on the front and back sides		
12	3	Acknowledgment and Practical application	Troubleshooting training capacity processing phase	Practical	Quizes+Reports
13	3	Acknowledgment and Practical application	Regulation and repair of the automatic gain control and channel selector circuit - IF phase repair and .regulation	Practical	Quizes+Reports
14	3	Acknowledgment and Practical application	Fixed CRT monitor and image phase malfunctions	Practical	Quizes+Reports
15	3	Acknowledgment and Practical application	Malfunctions of the synchronization pulse junction and .AFC circuit	Practical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Maintenance(2)/ EOTO221
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second

7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Providing students with skills in the field of maintenance of electrical appliances and equipment and training them with practical experiments on diagnosing faults	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Providing students with skills in the field of maintenance of electrical appliances and equipment and training them with practical experiments on .diagnosing faults
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Maintenance(2)		Second stage			
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1+2	3	Acknowledgment and Practical application	Malfunctions of the horizontal deflection stage and its frequency regulation - High pressure faults - Malfunctions of the vertical deflection stage and its frequency .regulation	Practical	Quizes+Reports
3	3	Acknowledgment and Practical application	Fixing audio stage malfunctions - FM detector malfunctions - Audio frequency power amplifier malfunctions	Practical	Quizes+Reports
4	3	Acknowledgment and Practical application	Training on fixing general black and white TV faults	Practical	Quizes+Reports
5	3	Acknowledgment and Practical application	Training on fixing general black and white TV faults	Practical	Quizes+Reports

6	3	Acknowledgment and Practical application	Students will be tested with general exercises on repairing a black and white television set	Practical	Quizes+Reports
7	3	Acknowledgment and Practical application	Track and read color TV map - Locate components - Determine the difference between color TV and regular	Practical	Quizes+Reports
8	3	Acknowledgment and Practical application	Training on the means of controlling and controlling color TV - adjusting and .organizing colors	Practical	Quizes+Reports
9	3	Acknowledgment and Practical application	Malfunctions in the power supply stage of color TV - malfunctions of touch control .circuits	Practical	Quizes+Reports
10	3	Acknowledgment and Practical application	Fixed malfunctions of the channel selector - inter-frequency - detector - and automatic gain controller for .color TV	Practical	Quizes+Reports
11	3	Acknowledgment and Practical application	Fix RGB color zoom stage and color screen LED - check the three screen launchers	Practical	Quizes+Reports
12	3	Acknowledgment and Practical application	Make the necessary arrangements for all stages of the device after completing the repair	Practical	Quizes+Reports
13	3	Acknowledgment and Practical application	Examining students with general troubleshooting exercises for color TV	Practical	Quizes+Reports
14	3	Acknowledgment and Practical application	An exercise on the operation and control of the VCD device - regulation by remote control and storage in a modern TV	Practical	Quizes+Reports
15	3	Acknowledgment	Exercises to check	Practical	Quizes+Reports

		and Practical application	and measure the processing stages of VCD devices - and the most common malfunctions in .them		

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Control systems/ EOTO223
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	45 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Distinguish between the different control systems, operate the devices and machines used in them, and deal with the control system in factories.	

10· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Knowledge and Understanding Distinguish between the different control systems, operate the devices and ..machines used in them, and deal with the control system in factories
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	

Pre-requisites	
Minimum number of students	
Maximum number of students	

Control systems			Second stage		
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	3	Acknowledgment and Practical application	Introduction to control systems	Practical+Theoretical	Quizes+Reports
2	3	Acknowledgment and Practical application	Open-circuit and closed-circuit control systems	Practical+Theoretical	Quizes+Reports
3	3	Acknowledgment and Practical application	Converting electrical signals into mechanical and vice versa, converting electrical signals into pneumatic and vice versa.	Practical+Theoretical	Quizes+Reports
4	3	Acknowledgment and Practical application	Error sensing devices used in control, their types	Practical+Theoretical	Quizes+Reports
5	3	Acknowledgment and Practical application	Electrical components to control electric motors - picker - timer - push switches - specific switches.	Practical+Theoretical	Quizes+Reports
6	3	Acknowledgment and Practical application	The four variables (temperature - pressure - flow - level measurement) in control systems	Practical+Theoretical	Quizes+Reports

7	3	Acknowledgment and Practical application	Controlling the operation and shutdown of a single phase induction motor using 1-B-Thyrostor-Triac electromagnetic receiver)	Practical+Theoretical	Quizes+Reports
8	3	Acknowledgment and Practical application	Complement the applied systems	Practical+Theoretical	Quizes+Reports
9	3	Acknowledgment and Practical application	Digital systems in control	Practical+Theoretical	Quizes+Reports
10	3	Acknowledgment and Practical application	Methods for measuring temperature, pressure, flow and level	Practical+Theoretical	Quizes+Reports
11	3	Acknowledgment and Practical application	The different elements of pneumatic control systems	Practical+Theoretical	Quizes+Reports
12	3	Acknowledgment and Practical application	Systems applied in pneumatic control	Practical+Theoretical	Quizes+Reports
13	3	Acknowledgment and Practical application	Use the analog calculator to control	Practical+Theoretical	Quizes+Reports
14	3	Acknowledgment and Practical application	How to represent digital circuits in control	Practical+Theoretical	Quizes+Reports
15	3	Acknowledgment and Practical application	Using the electronic calculator in application control systems.	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	PLC/ EOTO224
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	45 hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
Introduce students to the components of the programmable controller and how to program it	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Knowledge and Understanding Introduce students to the components of the programmable controller and .how to program it
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test

Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

PLC		Second stage			
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	3	Acknowledgment and Practical application	Introduction	Practical+Theoretical	Quizes+Reports
2+3	3	Acknowledgment and Practical application	Sensors with programmable controller(heat, pressure,motion ..etc)	Practical+Theoretical	Quizes+Reports
4	3	Acknowledgment and Practical application	Electrical switch, electrical contact	Practical+Theoretical	Quizes+Reports
5	3	Acknowledgment and Practical application	Introduction of ladder language	Practical+Theoretical	Quizes+Reports
6	3	Acknowledgment and Practical application	Logic ciruit (AND,OR,NOT,etc.) using ladder language	Practical+Theoretical	Quizes+Reports
7	3	Acknowledgment and Practical application	Timers and its types-simulation using ladder language	Practical+Theoretical	Quizes+Reports
8	3	Acknowledgment and Practical application	The signal in ladder language	Practical+Theoretical	Quizes+Reports
9	3	Acknowledgment and Practical application	Digital counter in ladder language with examples.	Practical+Theoretical	Quizes+Reports
10	3	Acknowledgment and Practical application	Example of (changeover circuit) using ladder language	Practical+Theoretical	Quizes+Reports
11	3	Acknowledgment and Practical application	Example of traffic light	Practical+Theoretical	Quizes+Reports
12	3	Acknowledgment and Practical application	Application example for open and close the door using motion sensor.	Practical+Theoretical	Quizes+Reports

13	3	Acknowledgment and Practical application	Operating circuit of single phase motor by swith (motor starter) using ladder language.	Practical+Theoretical	Quizes+Reports
14	3	Acknowledgment and Practical application	Operating circuit of three phase motor(delta-star)	Practical+Theoretical	Quizes+Reports
15	3	Acknowledgment and Practical application	Application example for electrical lift	Practical+Theoretical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Project(1)/ DIE30
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	30 hours

8. Date of production/revision of this specification	20/12/2022

9. Aims of the Course

It identifies the highlights of the project. He learns how to deal with his group of students in order to support teamwork, draws maps and designs for the project.

10· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Knowledge and Understanding

It identifies the highlights of the project. He learns how to deal with his group of students in order to support teamwork, draws maps and designs ..for the project

B. Subject-specific skills

Capability to manage projects

The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1.Carry out his duties on the job site with professional motives

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

- Creating appropriate curricula with the labor market
- Holding scientific seminars and conferences aimed at updating school curricula
- Follow up on scientific developments in the field of specialization

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute
Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Project(1)		Second stage			
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	2	Acknowledgment and Practical application	Distributing projects to students, meeting with the supervising professor, and starting to review the library to obtain resources for the project decided for students.	Practical	Quizes+Reports
2	2	Acknowledgment and Practical application	Collecting information about the project, starting the theoretical study, and preparing the designs needed to implement the project.	Practical	Quizes+Reports
3	2	Acknowledgment and Practical application	Implementation of the planned designs in practice and	Practical	Quizes+Reports

			conducting experiments		
4	2	Acknowledgment and Practical application	And tests to obtain practical results - a test and evaluation of the previous stage.	Practical	Quizes+Reports
5	2	Acknowledgment and Practical application	Transfer the experiments carried out in the laboratory to the panels to obtain the practical designed model, perform the test on the final model, and obtain the final results for discussion.	Practical	Quizes+Reports
6	2	Acknowledgment and Practical application	Discussing the practical results and their suitability with realistic results and finding the necessary explanations for the apparent cases.	Practical	Quizes+Reports
7	2	Acknowledgment and Practical application	Arrange the written parts of the report for each of the previous stages to write the final report on the project, in the following form: project name: Project professor: Student names: Conclusion: Chapter One: Introduction Chapter Two: The Theoretical Part Chapter Three: Practical Part and Results Chapter Four: Discussion of	Practical	Quizes+Reports

			findings, conclusions and proposals. Sources		
8	2	Acknowledgment and Practical application	Deliver the project demonstration along with the final report for final testing and evaluation.	Practical	Quizes+Reports

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Northern Technical University / Al-dour Technical Institute
2. University Department/Centre	Electronic Techniques
3. Course title/code	Project(2)/ DIE31
4. Programme(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	Is mandatory
6. Semester/Year	Second
7. Number of hours tuition (total)	30hours
8. Date of production/revision of this specification	20/12/2022
9. Aims of the Course	
It identifies the highlights of the project. He learns how to deal with his group of students in order to support teamwork, draws maps and designs for the project.	

10· Learning Outcomes, Teaching ,Learning and Assessment Method
B- Knowledge and Understanding It identifies the highlights of the project. He learns how to deal with his group of students in order to support teamwork, draws maps and designs ..for the project
B. Subject-specific skills Capability to manage projects The ability to solve problems on the job site and solve crises in this field
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
C. Thinking Skills C1.Carry out his duties on the job site with professional motives
Teaching and Learning Methods
Power point, Seminar, Discussion, Lecture, Test
Assessment methods
Quizzes; Midterm exam. And final exam.
D. General and Transferable Skills (other skills relevant to employability and personal development) - Creating appropriate curricula with the labor market - Holding scientific seminars and conferences aimed at updating school curricula - Follow up on scientific developments in the field of specialization

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Available in the free section and library of the institute
Special requirements (include for example workshops, periodicals, IT software, websites)	Available in the free section and library of the institute

Community-based facilities (include for example, guest Lectures , internship , field studies)	Internet
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Project(2)		Second stage			
Week	hours	Learning Outcomes	Unit/module or topic title	Teaching method	Assessment Method
1	2	Acknowledgment and Practical application	Distributing projects to students, meeting with the supervising professor, and starting to review the library to obtain resources for the project decided for students.	Practical	Quizes+Reports
2	2	Acknowledgment and Practical application	Collecting information about the project, starting the theoretical study, and preparing the designs needed to implement the project.	Practical	Quizes+Reports
3	2	Acknowledgment and Practical application	Implementation of the planned designs in practice and conducting experiments	Practical	Quizes+Reports
4	2	Acknowledgment and Practical application	And tests to obtain practical results - a test and evaluation of the previous stage.	Practical	Quizes+Reports
5	2	Acknowledgment and Practical application	Transfer the experiments carried out in the	Practical	Quizes+Reports

			laboratory to the panels to obtain the practical designed model, perform the test on the final model, and obtain the final results for discussion.		
6	2	Acknowledgment and Practical application	Discussing the practical results and their suitability with realistic results and finding the necessary explanations for the apparent cases.	Practical	Quizes+Reports
7	2	Acknowledgment and Practical application	Arrange the written parts of the report for each of the previous stages to write the final report on the project, in the following form: project name: Project professor: Student names: Conclusion: Chapter One: Introduction Chapter Two: The Theoretical Part Chapter Three: Practical Part and Results Chapter Four: Discussion of findings, conclusions and proposals. Sources	Practical	Quizes+Reports
8	2	Acknowledgment and Practical application	Deliver the project demonstration along with the final report for final testing and evaluation.	Practical	Quizes+Reports