

Republic of Iraq
Ministry of Higher Education
and Scientific Research
Scientific supervision and
evaluation device



Academic program and course

2025

Introduction:

The educational program is a coordinated and organized package of courses that include procedures and experiences organized in the form of study vocabulary, the main purpose of which is to build and refine the skills of graduates, making them qualified to meet the requirements of the labor market. It is reviewed and evaluated annually through internal or external audit procedures and programs, such as the external examiner program

Academic Program Description: A brief summary of the main features of the program and its courses, indicating the skills that students are working to acquire based on the objectives of the academic program. The importance of this description is evident because it represents the cornerstone in obtaining program accreditation, and the teaching staff participates in writing it under the supervision of the scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the vocabulary and paragraphs of the previous guide in light of the developments and changes in the educational system in Iraq, which included a description of the academic program in its traditional form (annual, semester) system, in addition to adopting the description of the academic program circulated pursuant to the letter of the Department of Studies TM3/2906 dated 5/3/2023 regarding programs that adopt the Bologna process as the basis for their work.

In this regard, we cannot but emphasize the importance of writing a description of academic programs and courses to ensure the smooth running of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a concise summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a concise summary of the most important characteristics of the course and the learning outcomes expected from the student, demonstrating whether he has made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture of the future of the academic program to be an advanced, inspiring, motivating, realistic and applicable program.

Program Mission: It briefly explains the goals and activities required to achieve them, and it also identifies the paths and directions of the program's development.

Program Objectives: These are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses/subjects included in the academic program according to the approved learning system (semester, yearly, Bologna track) whether required (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by the student after successfully completing the academic program. The learning outcomes for each course must be determined in a way that achieves the program objectives.

Teaching and Learning Strategies: The strategies used by the faculty member to develop the student's teaching and learning. They are plans that are followed to achieve the learning objectives. That is, they describe all classroom and extracurricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: Northern Technical University

Faculty/Institute: Technical Institute – Hawija

Scientific Department: Department of Computer Networks and Software Technologies

Academic or Professional Program Name: Diploma in Network Technologies

Final Certificate Name: Diploma in Network Technologies

Academic System: Courses

Description Preparation Date: 12 /5/2025

File Completion Date: 12 /5/2025



Signature:

Head of Department Name:

Assis. Prof. Dr. Suhail Najm Shahab

Date: 12 /5/2025

Signature:

Scientific Associate Name:

Dr. Mohammed Jiyad Luji

Date: 12 /5/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Ahmed Abed Khalaf

Date: 12 /5/2025

Signature:

Approval of the Dean



1. Program vision

Achieving excellence and leadership in information technology related to computer networks, providing society with effective intermediate staff in computer network systems, developing their capabilities in computer software, and developing their skills in interacting and communicating with others to reach a digital society under an electronic government.

2. Program message

We seek to provide an outstanding education in computer networks and software according to international standards, produce creative research that serves higher education, and provide technical consultations to raise the level of community performance.

3. Program objectives

- Preparing scientifically and educationally qualified staff compatible with the market and the needs of digital development fields.
- Encouraging scientific research in theoretical and applied sciences, as well as supporting future research and continuous development of curricula by contemporary cognitive, methodological and technical innovations.
- Participating in community service through direct and continuous interaction with governmental and non-governmental institutions, providing scientific consultations, and promoting continuing education programs.

4. Programmatic accreditation

The department is newly established for the academic year 2024-2025.

5. Other external influences

Nothing

6- Structure The program

Required ratios	ratios% = Total units for the / the total requirement (Total for graduation× 100	The total	Optional	Compulsory	Requirement type
% (15 – 10)	$(22 \div 112) \times 100 = 19$	22	4	18	University
% (22 – 16)	$(19 \div 112) \times 100 = 17$	19	0	19	Institute
% (74 – 63)	$(75 \div 112) \times 100 = 70$	75	0	75	Department
% 100		116	Total Graduation		

Course schedule / Level 1						
Requirements	: Course name in language	Number hours		of	number Units	code The decision
		Theory	The process			
University (10-15) %	Arabic					
	Democracy and human rights	2	0		2	NTU100
	English language	2	0		2	NTU101
	Computer	1	1		2	NTU102
	Arabic	2	0		2	NTU103
	Sports (optional)	1	1		2	NTU104
requirements The (Institute or college (16-22) %	French (optional)	2	0		2	NTU106
	Total university requirements units				8	
	mathematics	2	0		2	HTI100
	Mechanical Factor	0	3		3	HTI101
	Engineering drawing	0	3		3	HTI102
	Differential and integral calculus	2	0		2	HTI103
Department Requirements (63-74) %	Total units of formation requirements (institute)				10	
	Programming in language C++	2	3		5	CPN100
	Python programming	2	3		5	CPN101
	Computer architecture	2	3		5	CPN102

Calculator installation	Computer Organization	2	3	5	CPN103
Principles of Electronics	Principles of Electronics	2	3	5	CPN 104
Computer Networking Basics	Computer Networks	2	3	5	CPN 105
Principles of Electronic Engineering	Principles of Electrical Engineering	2	3	5	CPN 106
Internet of Things	Internet of Things	2	3	5	CPN 107
Total units of department requirements		40			
Total units		58			

Course schedule / Level 2						
Requirement Type	: Course name in language	Number of hours		number of Units	code The decision	
		Theory	The process			
Requirements University (10-15) %	Arabic					
	English language	2	0	2	NTU200	
	Computer	1	1	2	NTU201	
	Arabic	2	0	2	NTU202	
	Crimes of the Baath regime in Iraq	2	0	2	NTU203	
Professional ethics		2	0	2	NTU204	
Total university requirements units				10		
requirements	Research project	0	2	2	HTI200	

) The Institute (16-22) %	Specialized workshop	Specialized Workshop	0	3	3	HTI201
	Application project	Application Project	0	2	2	HTI202
	Occupational Safety	Vocational safety	2	0	2	HTI203
		Total units requirements			9	
Department Requirements (63-74) %	Databases SQL	Databases in SQL	2	3	5	CPN 200
	Encryption and computer security	Cryptography and Computer Security	2	3	5	CPN 201
	Network Management	Networks Management	2	3	5	CPN 202
	Website design	Electronic Web Design	2	3	5	CPN 203
	Website programming Web	Web Site Programming	2	3	5	CPN 204
	Programming in language VB	Visual Basic Programming	2	3	5	CPN 205
	Operating systems	Operating System	2	3	5	CPN 206
		Total units of department requirements			35	
		Total units			54	

Program Specification

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

1. Teaching Institution	Northern Technical University/ Hawija Technical Institute
2. University Department/Centre	Network and Computer Software Technologies
3. Program Title	Technical Sciences
4. Title of Final Award	Technical Diploma
5. The school system: Annual / Courses / Other Annual	Curriculum
6. Accreditation	practical& Theoretical
7. Other external influences	There is a close relationship between the labor market and the department's graduates.
8. Date of production/revision of this specification	10-16-2024
9. Aims of the Program	
Aims to prepare the technical staff that will be a link between the specialist and the skilled worker. The department prepares and provides the graduate with theoretical, applied and practical information to be able to carry out the work entrusted to him.	

10. Learning Outcomes, Teaching, Learning and Assessment Methods

Knowledge and Understanding

- 1- .Knows computers and computer networks
- 2- . computers and computer networks have gone through
- 3- . the various applications of computer software and computer networks
- 4- .Defines the components of the computer
- 5- .Distinguish between different types of computer networks
- 6- .Mention the tools used in connecting networks
- 7- Learn about the types of network cables
- 8- knows the internet
- 9- .Learn about the different uses of the Internet
- 10- Determines how to benefit from the Internet in the educational process
- 11- Distinguish between different ways to connect to the Internet
- 12- Distinguish between browsing and internet browsing programs
- 13- .Classifies the different types of email programs
- 14- Determines how to benefit from the e-mail service in the educational process
- 15- Mention the importance of Internet searchengines
- 16- Learn the most important terms in the field of computer networks
- 17- Learn about the most important modern trends in computer networks
- 18- .Fixes some network related faults
- 19- .Suggests solutions to some network related faults
- 20- Learn about educational website design standard

Subject-specific skills

- .1 Use of computer and Internet technologies in education and training.
- .2 Activating the relationship with the private sector in the areas of training.
- .3 Follow up the development of training plans curricula and then update the curricula.
- .4 Interacting with the labor market and community needs for rehabilitation and training.

Teaching and Learning Methods	
Through the presentation of a theoretical explanation with the aid of white board and 'Data Show', to illustrate syllabus (examples and exercises) and using text books	
Assessment methods	
1-	Written examination :To assess knowledge , understanding and skills (First half of the academic year , Mid-year exam, Second half of the academic year, final exam the academic year) .
2-	Oral examination: To assess knowledge, skills and intellectual functions, and attitude.
3-	Assignments & other activities.
4-	Quizzes (Shock exams).
5-	homwork.
Thinking Skills	
C1. Reading, Writing, Speaking and Listening for English language	
C2. Apply mathematics to everyday life problems.	
C3. Recognize the uses of commands in programs	
C4. Distinguishes between design – code – run parts and use different objects in creating the programs and understand algorithms, language abilities and reasons to use	
Teaching and Learning Methods	
1-	Lectures using white board and data show
2-	Experimental part
3-	Discussion about the practical application
Assessment methods	
1-	written examination
2-	oral examination
3-	quizzes
4-	homework
5-	report

Curriculum Skills Outline																		
Please check the boxes corresponding to the individual learning outcomes from the program being evaluated																		
			Learning outcomes required from the program															
year/level	Course Name	basic or optional	Cognitive goals				Program specific objectives				Emotional and value goals				Transferred general and qualification skills (other skills related to employability and personal development)			
			A 1	A 2	A 3	A 4	B 1	B 2	B 3	B 4	C 1	C 2	C 3	C 4	D 1	D 2	D 3	D 4
FIRST	Computer	primary	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Programming language C++	primary	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Computer Assembly	primary	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Computer Networking Basics	primary	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

English course description	
The English language course at the institutes aims to provide students with basic English language skills that serve to academic specialization and help them in the job market.	
1.	Course Name
	English Language
2.	Course Code
	NTU 101
3.	Available attendance forms
	Traditional attendance (in person) 2. Blended learning
4.	semester/year
	2025-2024 Level 1, First Semester
5.	Number of study hours (total)/ Number of unites
	30 hours / Tow unites
6.	Date this description was prepared
	2025/6/11
7.	Course supervisor name
	Name: Assistant Professor Dr. Suhail Najm Shihab Al-Tamimi Email: drsuhel_hwj@ntu.edu.iq
(Goals Course (Objectives) Public For the decision maker Develop basic English language skills: listening, speaking, reading, and writing. Enhancing the student's ability to use the English language in daily and professional situations. Introducing the student to the English terms related to his major.	

.9Outputs The decision and methods education and learning and evaluation	
A-Objectives cognitive The student should become familiar with the basic vocabulary and terms related to daily life and his professional specialization. To distinguish between different tenses and use them in correct sentences. The student should understand the structure of the English sentence in terms of subject, verb and object.	

English language course structure (theoretical vocabulary) -

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watch es	week
Diagnostic, formal and summative	theoretical	Unit one: hello Am/are/is, my/your This is with practice at work	Identify and use the verb am/are/is correctly in simple sentences. Use the pronouns my/ your to describe basic personal information.	2	1
Diagnostic, formal and summative	theoretical	Unit two :your world He/she /they, his/her Questions	Use subject pronouns he/she/they and possessive adjectives his/her accurately. Form and answer basic yes/no and wh - questions using "to be".	2	2
Diagnostic, formal and summative	theoretical	Unit three: all about	Provide simple personal information (eg, age, nationality, likes/dislikes). Respond to personal questions using correct sentence structures .	2	3
Diagnostic, formal and summative	theoretical	Unit four:family and friends Possessive adjectives Possessive's Has/have Adjective+ noun	Use possessive adjectives and possessive's to talk about relationships and belongings. Use has/have correctly with singular and plural nouns .	2	4
Diagnostic, formal and summative	theoretical	Unit Five: the way I live Present simple I/you /we /they A and an Adjective + noun	Use the present simple tense with I/you/we/they to describe routines. Use articles a/ an correctly. Create descriptive phrases using adjective + noun structure	2	5
Diagnostic, formal and summative	theoretical	Unit six: every day Present simple he/she Questions and negatives	Use the present simple tense with he/she and form questions and negatives. Use adverbs of frequency (eg, always, usually, never) to describe daily habits.	2	6

		Adverbs of frequency			
Diagnostic, formal and summative	theoretical	Unit seven: my favorite Question words Pronouns This and that	Use question words (eg, what, who, where) to ask for specific information. Distinguish between subject and object pronouns. Use this/that to refer to objects near or far .	2	7
Diagnostic, formal and summative	theoretical	Unit eight :where I live There is /are... Prepositions	Describe a place using There is/There are and common prepositions of place. Talk about furniture, rooms, and locations using basic vocabulary .	2	8
Diagnostic, formal and summative	theoretical	Unit nine: Times past Was /were born Past simple - irregular verbs	Use was/were born to describe personal history. Recognize and use common irregular verbs in the past simple tense .	2	9
Diagnostic, formal and summative	theoretical	Unit ten: we had a great time! Past simple - regular & irregular Question Negatives Ago	Use past simple tense for both regular and irregular verbs to describe past events. Form questions and negatives in the past tense. Use the time expression ago to talk about past events .	2	10
Diagnostic, formal and summative	theoretical	Unit eleven: I can do that! Can /can't Adverbs Requests	Use can/can't to express ability and permission. Use adverbs to describe how something is done (eg, quickly, well). Make and respond to simple requests .	2	11
Diagnostic, formal and summative	theoretical	Unit twelve: Please I'd like... Some and any Like and would like and thank you	Use some/any in affirmative and negative sentences. Express preferences using like and would like. Practice polite expressions such as thank you, please, I'd like ...	2	12
Diagnostic, formal and summative	theoretical	Unit thirteen: here and now Present continuous	Use the present continuous tense to describe current actions. Distinguish between present simple and present continuous in context .	2	13

		Present simple & present continuous			
Diagnostic, formal and summative	theoretical	It's time to go! Future plans Revision writing email and informant letter	Make and talk about future plans using simple future expressions (eg, going to). Review and consolidate key grammar and vocabulary from previous units. Write an email and an informal letter using appropriate format and language .	2	14-15

English language infrastructure -	
Available	Classrooms, laboratories and workshops
	Required textbooks -1
	Main references (sources) -2
New Headway (Beginner to Pre-Intermediate) Liz and John Soars - Oxford Cutting Edge Longman/Pearson	A- Recommended books and references (.Scientific journals, reports, etc)
https://learnenglish.britishcouncil.org	B - Electronic references, Internet sites

a description Human Rights and Democracy Course	
1. Course Name	Human Rights and Democracy
2. Course Code	NTU 100
3. Available attendance forms	blended learning , Traditional attendance (face-to-face)
4. semester/year	2025-2024 Level 1, First Semester
5. Number of study hours (total)	hours 30
6. Date this description was prepared	2025/6/11
7. Course supervisor name	Name: Assistant Professor Dr. Mohammed Yassin Hussein Email: mohammedyassen@ntu.edu.iq
(Goals Course (Objectives) Public For the decision maker -8 Introducing the student to the basic concepts of human rights and democracy. Promoting awareness of human values, justice, and freedom. Understanding the legal and international legitimacy foundations of human rights. .Linking the principles of democracy to the practices of public and institutional life	
.9Outputs The decision and methods education and learning and evaluation	
A-Objectives cognitive Learn the basic concepts related to human rights and democracy. .Analysis of legal texts related to public rights and freedoms	

B - Objectives Skills Private As scheduled .

The ability to discuss legal issues from a legal and humanitarian perspective.

.Evaluating different democratic practices within the local and international context

C-Objectives emotional and the value

Promoting human values, tolerance and acceptance of others.

.Developing a sense of responsibility towards respecting rights and community participation

Methods education and learning -

Lessons theory Intense, Model Data with films Educational

Evaluation methods-

Commitment And perseverance on the audience, reports , homework and exams Daily And monthly, exam end the chapter

Course structure: Human Rights and Democracy (theoretical vocabulary) -

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watch es	week
Monthly exams and a final exam	theoretical	,Human rights ,definition objectives.	The student should define the concept of human rights and explain their basic objectives.	2	1
Monthly exams and a final exam	theoretical	The roots of human rights and their development in ,human history human rights in ancient and medieval times.	The student should explain the historical development of the idea of rights throughout the ages.	2	2
Monthly exams and a final exam	theoretical	Human rights in the civilization of Mesopotamia.	The student should explain how human rights principles appeared in ancient societies.	2	3
Monthly exams and a final exam	theoretical	Human Rights ,in Divine Laws a special study of human rights in Islam.	The student should mention examples of ancient texts and laws (such as the Code of Hammurabi) that dealt with human rights.	2	4
Monthly exams and a final exam	theoretical	Human rights in the Middle Ages, rights in ,doctrines ,schools ,theories ,corporations their declarations and constitutions.	To explain how the heavenly religions dealt with human rights, especially in Islam.	2	5
Monthly exams and a final exam	theoretical	Human rights in contemporary and modern	The student should describe how philosophies and schools of thought have dealt with rights .	2	6

		,history international recognition of human rights in the League of Nations.			
Monthly exams and a final exam	theoretic al	Regional recognition of ,human rights European Convention on Human Rights ,1950 American Convention 1969.	To learn about the role of the League of Nations and the United Nations in recognizing .human rights	2	7
Monthly exams and a final exam	theoretic al	Introduction to Democracy - Definition of democracy - The difference between democratic and non-democratic systems	- The student should be able to distinguish between a democratic and a non- .democratic system - To learn about the characteristics of the .democratic system	2	8
Monthly exams and a final exam	theoretic al	Types of democracy - Direct democracy Representative democracy Participatory - democracy	- To identify the types of .democracy and their examples - To explain the difference .between them	2	9
Monthly exams and a final exam	theoretic al	Basic principles of democracy Majorityrule - Rule of law	- The student should explain the basic principles of any .democratic system - To link principles to human .values	2	10

		Respect for - rights and freedoms			
Monthly exams and a final exam	theoretic al	Active citizenship - The concept of citizenship - The duties and rights of the citizen - Participation in public life	- The student should realize his role as a citizen - To express the importance of participation in public life	2	11
Monthly exams and a final exam	theoretic al	Democracy and human rights - The relationship between democracy and the protection of rights - freedom of ,expression assembly and organization	- To link democracy and guaranteeing rights - To analyze the importance of freedom of opinion in democratic systems	2	12
Monthly exams and a final exam	theoretic al	Institutions of the democratic system - Parliament - Judiciary - Media - Civil society organizations	- To explain the functions of each institution - To understand the balance between powers	2	13
Monthly exams and a final exam	theoretic al	Institutions of the democratic system Challenges facing democracy	To explain the functions of - .each institution - To discuss the obstacles to .building a democratic system	2	14-15

Infrastructure, human rights and democracy -	
Available	Classrooms
	Required textbooks -1
	Main references (sources) -2
Dr. Muhammad Nour Farhat ,The Human Rights Book Introduction to Human Rights , Dr. Mahmoud Sharif Bassiouni Democracy and Human Rights , Dr. Abdel-Ilah Belqaziz	A- Recommended books and references (.Scientific journals, reports, etc)
	B - Electronic references, Internet sites

Course Description Form

1. Course Name
Principles of Electrical Engineering
2. Course Code
CPN/ 106
3. Available Attendance Forms
In person
4. Semester / Year
2024-2025 First Semester
5. Number of Credit Hours (Total) / Number of unites
60 hours / 4 unites
6. Course administrator's name
Name: Husniyah Jasim Abdullah Email: husniyah_hwj@ntu.edu.iq
7. The history of preparation of this description
29\6\2025
8. Course Objectives (General Objectives of the Course)
Introducing the student to electrical circuits and electrical measurements. Preparing the student to study the different calculations in circuits with direct current identify the various theories to study those calculations, introducing the student to different measuring devices
9. Course outputs
Cognitive goals During the academic year, the student learns the basics of DC circuits and electrical measurements. - Preparing the student to study the different calculations in circuits with direct current and identify the various theories to study those calculations, introducing the student to the different measuring devices B - Skills objectives of the course. - Ability to design and conduct experiments and analyze and interpret data. - Ability to identify, formulate and solve problems. - Mastery of the necessary mathematical, basic and engineering sciences. Ability to use techniques and skills required at work.

10 Course Structure

Chapter One					
The week	Hours	Unit / Subject Name	Unit / Subject Name	Method of education	Evaluation method
2 – 1	8	Module system used in electricity	Definition of basic units of voltage, current and resistance - components of the electrical circuit - Ohm's law - factors affecting the value of resistance - specific resistance of the conductive and insulating material	Theoretical lecture + practical applications	Paper Test + Practical Test
3-4	8	DC circuits:	-Connecting resistors in series with examples - Connecting resistors in parallel with examples -Mixed connection of resistors with examples. Star and triangular bonding (Y / $\square$) for resistors	Theoretical lecture + practical applications	Paper Test + Practical Test
5-6	8	Kirchhoff's Laws	-Kirchhoff's legal definition of current and voltages with solving questions -Maxwell with solving examples-	Theoretical lecture + practical applications	Paper Test + Practical Test
7-8-9	12	Thevenen theorem + Norton's theorem	Thevenen's theorem how to apply it in DC circuits Norton's theory – definition of the theory – how to apply it in DC circuits	Theoretical lecture + practical applications	Paper Test + Practical Test

10-11	8	Congruence theory	– Definition of the theory – Steps to apply it in solving DC circuits that contain more than one source – Solving examples	Theoretical lecture + practical applications	Paper Test + Practical Test
11-12	8	Applications	Applications to Thevenen and Norton's theory	Theoretical lecture + practical applications	Paper Test + Practical Test
13-14	8	Definition of current source and voltage source (constant power distributor)	The theory of transferring the greatest possible capacity - defining the theory and deriving its relationships - practical examples	Theoretical lecture + practical applications	Paper Test + Practical Test
15		Miscellaneous Questions		Theoretical lecture + practical applications	Paper Test + Practical Test

1. Infrastructure 1- Classrooms 2- Computer Lab	
2. Course Development Plan 1- Update the methodological book 2- Developing the laboratory and increasing scientific vocabulary	
1. Electrical Technology (Edward Hughes) 2. Basic Circuits (A-M-F Brooks) pregame press 3. Introduction to Electric circuits (M Romanwitz) John Willy	1 Required textbooks
Circuits and Measurements Book Project	2 Main references (sources)
	Recommended books and references (scientific journals, reports ,....)

Course Description Form

1. Course Name:

Principles of Electronics

2. Course code

CPN 104

3. Available attendance form

In person, online.

4. Semester/ year

Semester 2024–2025

5. Number of Credit Hours (Total) / Number of Units (Total)

75

6. Course administrator's name

Name: Husniyah Jasim Abdullah

Email: husniyah_hwj@ntu.edu.iq

7. Description Preparation Date:

29\6\2025

8. Course Objectives

The objectives of the Principles of Electronics course represent the educational objectives that course seeks to achieve by providing students with basic knowledge and skills in the field electronics:

1. Introduce students to the basic concepts of electronics:

Enable students to understand the basic principles of the functioning of electronic components and DC and AC systems.

2. Develop analytical skills:

Develop students' ability to read and analyze simple electronic charts and circuits.

3. Enabling students to design electronic circuits:

Qualify students to design and build electronic circuits that suit specific requirements using basic components.

4. Enhance practical skills in the laboratory:

Train students to properly use laboratory instruments and devices to adjust and test electronic circuits.

5. Encourage critical thinking and problem solving:

Enhance students' ability to identify errors in proposed or existing circles and propose appropriate solutions.

1. Course Outcomes and Methods of Teaching, Learning and Assessment

Definition: The Electronics course is one of the core courses in the Electrical, Electronic and Computer Science programs, and aims to introduce students to the basic principles of the work of electronic components and the analysis and design of analog and digital circuits. The course includes the study of the properties of elements such as diodes, transistors (BJTs and FETs), and process amplifiers (Op–Amps)., in addition to the calendar, organization and zoom departments.

This course provides students with the theoretical and practical skills necessary to understand the behavior of electronic circuits and analyze them using basic electrical laws and design and simulation techniques. This course is the basis for building deeper knowledge in the areas of control, communications, embedded systems and integrated circuits.

Course Importance:.

How they are determined: Course outcomes are determined based on the objectives of the academic program to which the course belongs.

Output	Teaching and learning methods	Evaluation methods
- Understand the basics of electronics: - Identify electronic components:	Presentation, Explanation, Q&A, Discussion	Assignments and duties

• Reading and analyzing electrical and electronic diagrams:		• Quiz beta test • Practical test • Monthly test - Final Written Exam
Simple electronic circuit design. Operation and experimentation in the laboratory. Develop problem-solving skills.	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications.	• Assignments and duties • Quiz beta test • Practical test • Monthly test - Final Written Exam
Safe handling of electronic tools and components. The use of technical programs in the design of circuits. Teamwork and communication.	Self-learning Cooperative Learning Blended Learning	• Assignments and duties • Quiz beta test • Practical test

					Monthly test Final Written Exam
9. Course structure (theoretical and practical vocabulary)					
The week	Hours	Required Learning Outcomes	Unit / Subject Name	Method of education	Evaluation method
first	3	Introduction to Semiconductors	Identify the types of conductive, insulating and semiconductor materials	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Assignments and duties Quiz beta test Practical test Monthly test Final Written Exam
Second	3	Semiconductor theory	Atomic structure – energy levels – crystals – conductivity in crystals – gap current – how gaps move	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Assignments and duties Quiz beta test Practical test Monthly test Final Written Exam
Third	3	Doping	Positive crystal type (P) negative crystal type (N) electron stream and gap current – total resistance	Active learning: includes active and interactive participation in the learning process through the practice of	Assignments and duties Quiz beta test

				activities and practical applications	Practical test Monthly test Final Written Exam
Fourth	3	Semiconductor diode	– Connection (PN) - Evacuation zone configuration – - barrier voltage – - power hill – thermal effects – bias bidal – - forward bias – - reverse bias – - forward and reverse direction property curves	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Assignment s and duties Quiz beta test Practical test Monthly test Final Written Exam
FIFTH		Semiconductor diode	- Curves of properties in the forward and reverse directions – - ephemeral transit current – minority carrier current – - surface leakage current – refractive potential – - breakdown voltage (PIV) – greatest forward current – - greatest reverse voltage – (PIVmax) – binary equivalent circuit	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Assignment s and duties Quiz beta test Practical test Monthly test Final Written Exam
Sixth	3	Duo as a current un	– Half-wave uniform – Continuous current value and calculation –	Active learning: includes active and interactive participation in the learning process through the practice of	Assignment s and duties Quiz beta test

			Effective value Output frequency	activities and practical applications	Practical test Monthly test Final Written Exam
Seventh	3	Full wave unification	– Full wave gantry rectifier, full-wave uniform using the median branching converter.	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Assignment s and duties Quiz beta test Practical test Monthly test Final Written Exam
Eighth	5	Full wave unification	Gantry Uniform – Calculation of continuous and effective current values – Output frequency extraction – Comparison between half-wave uniform and full wave uniform – Comparison of full wave uniforms.	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Assignment s and duties Quiz beta test Practical test Monthly test Final Written Exam
Ninth	5	Filters	– Dilator filtration – Filter (LC) Filter (RC) – Continuous output voltage ripple	Active learning: includes active and interactive participation in the learning process	Assignment s and duties

				through the practice of activities and practical applications	Quiz beta test Practical test Monthly test Final Written Exam
tenth	5	Dual Zener	– Structure – - Symbol – Properties – Breakdown - Refraction Zener - Refraction – - Refractive Potential –	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Assignment s and duties Quiz beta test Practical test Monthly test Final Written Exam
Eleventh	5	Dual Zener	- Power Tolerance – - Zener Impedance – - Temperature Effects – Zener - Approximation - Constant Voltage - Regulation	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Assignment s and duties Quiz beta test Practical test Monthly test Final Written Exam
Twelve		Transistor bias circuit	– Base bias – - Motive bias	Active learning: includes active and interactive participation	Assignment s and duties

	5			in the learning process through the practice of activities and practical applications	Quiz beta test Practical test Monthly test Final Written Exam
Thirteen	5	Power Amplifiers	Inverter and non-reflector amplifier	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Assignment s and duties Quiz beta test Practical test Monthly test Final Written Exam
Fourteenth	5	Operations Amplifier	The collector – the author and the comparative	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Assignment s and duties Quiz beta test Practical test Monthly test Final Written Exam
First Laboratory	3	Identify the use of laboratory equipment	How to measure resistors and how to measure time and	Active learning: includes active and interactive participation	Practical test Monthly

		correctly with the method of measuring resistors practically and using colors.	time using laboratory devices such as a signal plotter.	in the learning process through the practice of activities and practical applications	test Final Written Exam
Second	3	Diode properties	Diode wicker in front and reverse direction	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Practical test Monthly test Final Written Exam
Third	3	Uniform Half Waveform	Semi-waveform combiner	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Practical test Monthly test Final Written Exam
Fourth	3	Gantry uniform using gantry and using the transformer with middle branching.	Identify input and output waves with and without filters.	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Practical test Monthly test Final Written Exam
fifth	3	Pruning circles	Luxury on pruning circles and their uses.	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Practical test Monthly test Final Written Exam

sixth	3	Duo Zener	Recognize the properties of Zener.	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Practical test Monthly test Final Written Exam
seventh	3	Transister	The use of a transistor is a common emitter and a common collector.	Active learning: includes active and interactive participation in the learning process through the practice of activities and practical applications	Practical test Monthly test Final Written Exam

10. Course Development Plan

Updating the curriculum continuously to keep pace with the developments of the labor market (Curriculum Update Committee, Scientific Committee) such as

- 1. Develop curricula adapted to the labour market**
 - 2. Holding seminars and scientific conferences aimed at updating school curricula**
- 1– Follow up on scientific developments in the field of specialization**

11. Learning and Teaching Resources

Classrooms, laboratories and worksho	Available
Required textbooks (curricular books, if any)	Principles of Electronics Translated by: Malvino
Main references (sources)	Badr Muhammad Ali Alwattar
A) Recommended books and references (scientific journals, reports...)	Noor Library
B) Electronic References, Websites	

Sports course description	
.should be able to identify the most important types of sports and the rules and skills specific to some sports	
1. Course Name	Sports
2. Course Code	NTU104
3. Available attendance forms	Traditional attendance (in person)2. Blended learning
4. semester/year	2025-2024 Level 1, First Semester
5. Number of study hours (total)	30
6. Date this description was prepared	2025/6/11
7. Course supervisor name	Name: Assistant Professor Dr. Suhail Najm Shihab Al-Tamimi Email: drsuhel_hwj@ntu.edu.iq
(Goals Course (Objectives) Public For the decision maker -8	
.Learn about the human body's kinetic mechanism and the common injuries that occur in the human body	
Applying basic skills for some individual and group games.	
.Learn about the most important sports laws and regulations and how to manage sports tournaments and competitions	
.9Outputs The decision and methods education and learning and evaluation	
A-Objectives cognitive To introduce the student to the concepts of physical fitness, health, sports training, and nutrition. To explain to the student the importance of physical education in preventing diseases and promoting a healthy lifestyle. To list the components of physical fitness (strength, speed, flexibility, endurance, balance...).	

Structure of the sports course (theoretical and practical vocabulary) -					
Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watch es	week
Written and skill tests	Theoretical practical +	:Sports ,definition importance and types	To introduce the student to the concept of sports and its health and social importance	2	1
Written and skill tests	Theoretical practical +	Mechanism of human body movement	To explain to the student the basic principles of anatomy and muscle movement.	2	2
Written and skill tests	Theoretical practical +	Common sports injuries	The student must identify the types of injuries (tears, bruises, fractures, etc.).	2	3
Written and skill tests	Theoretical practical +	Basic basketball skills	To learn the names of basic skills (passing, dribbling, shooting, tackling).	2	4
Written and skill tests	Theoretical practical +	International Basketball Laws	To explain the official international ,rules (number of players, playing time (fouls, scoring.	2	5
Written and skill tests	Theoretical practical +	Basic table tennis skills and international rules	,To learn the skills of the game (sending (receiving, hitting.	2	6
Written and skill tests	Theoretical practical +	Basic skills of volleyball and its international laws	,To list the skills of the game (sending (passing, wall, setting.	2	7
Written and skill tests	Theoretical practical +	Swimming	To learn the types of swimming ,freestyle, breaststroke, backstroke) (butterfly.	2	8
Written and skill tests	Theoretical practical +	Basic skills of tennis and its international rules	To determine the basics of the game and the rules (serve, points, errors).	2	9
Written and skill tests	Theoretical practical +	Basic handball skills	To introduce the student to the basic rules of the game, the number of players and the field.	2	10
Written and skill tests	Theoretical practical +	International Handball Laws	To learn about the types of athletics (running, jumping, throwing).	2	11

Written and skill tests	Theoretical practical +	Track and field games ,types) international (game law	,To define skills (passing, shooting (control, covering.	2	12
Written and skill tests	Theoretical practical +	Basic football skills	To explain the types of competitions (...elimination, league, group).	2	13
Written and skill tests	Theoretical practical +	Management of sports competitions and competitions	To implement the regulatory procedures in organizing sporting events.	2	14
Written and skill tests	Theoretical practical +	Sports laws and regulations	To understand sports laws and regulations		15

Sports infrastructure -	
Available	and playgrounds Classrooms
,Foundations of Physical Education and Sports Sciences authored by: Professor Dr. Mahmoud Dawood Al-Rubaie Educational Curricula and Physical Education Curricula Authored by: Professor Dr. Munther Hashem Al-Khatib	Required textbooks -1
	Main references (sources) -2
Comprehensive Sports Library Educational Science Library - Arab International Academy	A- Recommended books and references (.Scientific journals, reports, etc)
	B - Electronic references, Internet sites

Course Description Form

1. Course Name:	
Python programming	
2. Course Code:	
CPN101	
3. Semester / Year:	
semester 2025–2024	
4. Description Preparation Date:	
2025\6\29	
5. Available Attendance Forms:	
6. Number of Credit Hours (Total) / Number of Units (Total)	
116	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Hasan Abdulsalam Hamid Email: h.a.hamid@ntu.edu.iq	
8. Course Objectives	
Course Objectives	Learn the Python programming language, how to use it, and what are its most important .applications
9. Teaching and Learning Strategies	
Strategy	Teaching and learning methods Presentation, explanation, questions and answers, discussion Evaluation methods - Assignments and duties - Quiz - practical control - monthly test Final written exam

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the first	5	History –1 of the language Why is –2 it needed The –3 importance of language in relation to other languages	Introduction to the Python Programming Language	Active :learning involves active and interactive participation in the learning process through practical activities and .applications	• Assignments and duties • Quiz • practical control • monthly test Final written exam
the second	5	Choose–1 the program –2 Download the program Install –3 the program –4 Program adjustment methods	How to install and configure the language driver	Active :learning involves active and interactive participation in the learning process through practical activities and .applications	• Assignments and duties • Quiz • practical control • monthly test Final written exam

		Create –5 your first Python program			
the third	5	1– Print prompt 2– How to print Terms of Use of Orders	Print commands in Python	Active :learning involves active and interactive participati on in the learning process through practical activities and application .s	• Assignme nts and duties • Quiz • practical control • monthly test Final written exam
Fourth	5	3– Input prompt 4– How to enter Terms –3 of use of orders	Python input commands	Active :learning involves active and interactive participati on in the learning process through practical	• Assignme nts and duties • Quiz • practical control • monthly test Final written exam

				activities and application .s	
Fifth	5	What-1 are the ?comments The -2 importance of comments How to -3 use comments	How to write comments	Active :learning involves active and interactive participati on in the learning process through practical activities and application .s	• Assignments and duties • Quiz • practical control • monthly test Final written exam
Sixth	5	Data-1 types Real -2 ,numbers ,integers and strings	Data types	Active :learning involves active and interactive participati on in the learning process through practical	• Assignments and duties • Quiz • practical control • monthly test Final written exam

				activities and application .s	
Seventh	5	-1 Introduction to dealing with text strings How to -2 deal with it in Python language	Text strings	Active :learning involves active and interactive participati on in the learning process through practical activities and application .s	• Assignme nts and duties • Quiz • practical control • monthly test Final written exam
The eighth	5	How to handle functions in strings	Functions in strings	Active :learning involves active and interactive participati on in the learning process through practical	• Assignme nts and duties • Quiz • practical control • monthly test Final written exam

				activities and application .s	
Ninth	5	–1 Indexing series How to –2 divide it	The mechanism for indexing text strings and how to divide them	Active :learning involves active and interactive participati on in the learning process through practical activities and application .s	• Assignme nts and duties • Quiz • practical control • monthly test Final written exam
tenth	5	1– From real numbers to integers and vice versa From text to real numbers	How to convert between data types	Active :learning involves active and interactive participati on in the learning process through practical	• Assignme nts and duties • Quiz • practical control • monthly test Final written exam

				activities and application .s	
eleventh	5	How to use the type command	Usetype	Active :learning involves active and interactive participati on in the learning process through practical activities and application .s	• Assignme nts and duties • Quiz • practical control • monthly test Final written exam
twelfth	5	How to perform mathematic al and arithmetic operations	How to perform mathematic al and arithmetic operations	Active :learning involves active and interactive participati on in the learning process through practical	• Assignme nts and duties • Quiz • practical control • monthly test Final written exam

				activities and application .s	
thirteenth	5	How to work with complex numbers	Complex numbers	Active :learning involves active and interactive participation in the learning process through practical activities and application .s	• Assignments and duties • Quiz • practical control • monthly test Final written exam
fourteenth	5	Solve practical examples	Solve practical examples	Active :learning involves active and interactive participation in the learning process through practical	• Assignments and duties • Quiz • practical control • monthly test Final written exam

				activities and application .s	
First lab	5	Getting to know the Python environmen t	Python environment	Learning through practical activities and application s	• practical control • monthly test Final written exam
the second	5	First printing program	How to print	Learning through practical activities and application s	• practical control • monthly test Final written exam
the third	5	Dealing with numbers	Dealing with numbers	Learning through practical activities and application s	• practical control • monthly test Final written exam
Fourth	5	Using conditional tools	Using conditional tools	Learning through practical activities and	• practical control • monthly test Final written exam

				application s	
Fifth	5	Using loop tools	Using loop tools	Learning through practical activities and application s	- practical control - monthly test Final written exam
Sixth	5	Contrast between numbers and texts	Contrast between numbers and texts	Learning through practical activities and application s	- practical control - monthly test Final written exam
Seventh	5	Writing programs with functions	Writing programs with functions	Learning through practical activities and application s	- practical control - monthly test Final written exam
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Python programming		
Main references (sources)			Introduction to Python Programming		

Recommended books and references (scientific journals, reports...)	Introduction to Python -1 Programming Python in Arabic-2
Electronic References, Websites	https://harmash.com

Course Description Form

1. Course Name:	
Engineering Drawing	
2. Course Code:	
HTI101	
3. Semester / Year:	
semester 2025-2024	
4. Description Preparation Date:	
2025\6\29	
5. Available Attendance Forms:	
presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
90=30*3/ 6 unites	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Hasan Abdulsalam Hamid Email: h.a.hamid@ntu.edu.iq	
8. Course Objectives	
Course Objectives	1 Understanding the basic rules of engineering drawing using acomputer. -2 Draw basic models using thisprogram. -3 Design and draw the proposedmodels.
9. Teaching and Learning Strategies	
Course outcomes identification It is considered Engineering drawing is a universal : language for engineers and technicians, used to convey design ideas with complete accuracy, in addition to being a primary tool for implementing manufacturing, infrastructure, architecture, etc., by adhering to unified standards(ISO/ASME/ANSI) ,that specify the characteristics of shape .dimensions, materials, tolerances, and the type of sections and surfaces Itsimportance: 3D representation on a 2D :1surface: via orthogonal projection methods (front/top/side view)	

Accurate and clear :2specifications: ,including length, angles dimensions, line type, tolerances, materials, surface description, and data .such as the artist's name, references, and numbersTemporal.

How is it determined? So that it includes all the information necessary to ensure that the item is manufactured or implemented accurately and clearly. In general, the outputs are divided into detail drawingsand assemblydrawings.

Strategy	knowledge and understanding Basics of engineering Knowledge - A1 drawing using AutoCAD A2 - Knowing how to draw geometric shapes Basic computer use A3 - Knowledge and understanding Program commands A4 - Knowing how to draw two- dimensional shapes A5 - Knowing how to draw three- dimensional shapes A6 - Knowledge of writing and setting dimensions For shapes Engineering
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10. Course Structure

Week	Hou rs	Requir ed Learni ng Outco mes	Unit or subject name	Learning method	Evaluation method
the first	3 ho urs	Introd ucing the studen t to the interfa ces	The importance of engineering drawing. Getting to know the interfaces AutoCAD program	Show about Power Roadpoint With the app	Through participation and exams

		program AutoCAD How to use			
the second	3 hours	How to use Commands for purpose The drawing	Display orders Drawing limits and units	Show about Power Roadpoint With the app	Through participation and exams
the third	3 hours	Student education On how Using commands For more accurate drawing	Drawing accuracy commands GRID , POLAR, OSNAP	Show about powerpoint path With the app	Through participation and exams
Fourth	3 hours	How to use	Drawing commands	Show about powerpoint path	Through participation and exams

		Ready – made commands	Rectangle elements Circle, Polygon, Arc	With the app	
Fifth	3 hours	Student education Use Commands To modify and facilitate The drawing	Erase commands Copy, Move, Mirror,	Show about powerpoint path With the app	Participation
Sixth	3 hours	Student education On the dimensions of the drawing precisely	Put different dimensions on Drawing elements and control it Using a square Dimensions mode dialogue	Show about powerpoint path With the app	Through participation and exams

Seventh	3 hours	How to control Font type and color	Control specifications Drawing ,types Lines colors ,Elements Its characteristics	Show about powerpoint path With the app	Through participation and exams
The eighth	3 hours	How to use Commands to facilitate The drawing	Element drawing commands Ellipse, Donut, Wipeout, Revision Cloud	Show about powerpoint path With the app	Through participation and exams
Ninth	3 hours	Student education Use Commands To modify and facilitate The drawing	Modification orders OtherOffset, Scale, Stretch, Rotate	Show about powerpoint path With the app	Through participation and exams

tenth	3 ho urs	Knowi ng how Add text Line contro l color and others	Add texts Its methods and control With its specification s	Show about powerpoint path With the app	Through participation and exams
eleventh	3 ho urs	To know the accou nt spaces Sizes and length s	Handling orders Parametric bar	Show about powerpoint path With the app	Through participation and exams
twelfth	3 ho urs	How to use mislea ding And specifi cation and others	Hovering and shading and sectors	Show about powerpoint path With the app	Through participation and exams
thirteenth	3 ho urs	Studen t educat ion	Layers And control its settings	Show about powerpoint path With the app	Through participation and exams

		Use Com mands to work Layers and contro l			
fourteenth	3 ho urs	Teachi ng the studen t how to drawin g blocks	Blocks	Show about powerpoint path With the app	Through participation and exams
fifteenth	3 ho urs	Studen t educat ion Types of blocks	Types of blocks And include it and control its specification s.	Show about powerpoint path With the app	Through participation and exams

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

Continuously updating the curriculum to keep pace with

developments in the labor market (Curriculum Update

:Committee, Scientific Committee) such as

- 1– Updating the curriculum to keep pace with developments in the field of engineering drawing.**

Follow up on scientific developments in updating the program continuously.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	The prescribed engineering drawing lectures binder
Main references (sources)	https://faculty.uobasrah.edu.iq/uploads/teaching/1711798938.pdf
Recommended books and references (scientific journals, reports...)	https://www.smartdraw.com/cad/engineering-drawing-software.htm?srsId=AfmBOoqDqQ2hjW1riiDu_ZmtTLd6-itW7EDrm7zUii1JMSEtmWi8ii2i
Electronic References, Websites	https://www.qrcodechimp.com/page/srcyif3uvk4a4

Course Description Form

1. Course Name:	
COMPUTER NETWORKS	
2. Course Code:	
CPN105	
3. Semester / Year:	
2024/2025	
4. Description Preparation Date:	
29/6/2015	
5. Available Attendance Forms:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
116	
7. Course administrator's name (mention all, if more than one name)	
Name: RAED A HASAN Email: raed.isc.sa@ntu.edu.iq	
8. Course Objectives	
Course Objectives	The study of networking fundamentals aims to achieve several general objectives, including: Understanding Basic Concepts: Acquiring knowledge about fundamental networking concepts, such as types of networks (LAN and WAN) and networking devices (routers, switches, servers). Network Design: Learning how to effectively design and plan networks to meet user needs. Protocol Application: Understanding various networking protocols (such as TCP/IP) and how to use them for data transmission. Network Management: Developing skills necessary

	for managing and maintaining networks, including performance monitoring and troubleshooting. • Network Security: Familiarizing oneself with network security principles and how to protect information from threats. • Modern Technologies: Keeping up with technological advancements in networking, such as cloud networking and the Internet of Things (IoT). • Teamwork Skills: Enhancing collaboration and teamwork skills within multidisciplinary teams. • Practical Applications: Implementing hands-on projects that help reinforce theoretical understanding and apply it to real-world situations
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9. Teaching and Learning Strategies

Strategy	
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Overview and importance of networks Types of networks (LAN, WAN, MAN, etc.)	Introduction to Computer Networks	Active learning: It involves active and interactive participation in the learning process through engaging in activities and practical applications.	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam ☐ Monthly test ☐ Final written exam
2	5	Star, bus, ring, and mesh topologies Advantages and disadvantages of each	Network Topologies	Active learning: It involves active and interactive	☐ Assignments and duties ☐ Practice quiz ☐ Practical

				participation in the learning process through engaging in activities and practical applications.	exam ☐ Monthly test ☐ Final written exam
3	5	☐ Detailed study of the OSI layers ☐ Functions of each layer	The OSI Model	Active learning: It involves active and interactive participation in the learning process through engaging in activities and practical applications.	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam ☐ Monthly test ☐ Final written exam
4	5	☐ Comparison with the OSI model ☐ Focus on the TCP/IP layers and their functions	The TCP/IP Model	Active learning: It involves active and interactive participation in the learning process through engaging in activities and practical applications.	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam ☐ Monthly test ☐ Final written exam
5	5	☐ Routers, switches, hubs, and bridges ☐ Role and function of each device	Networking Devices	Active learning: It involves active and interactive participation in the learning process through engaging in activities and practical applications.	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam ☐ Monthly test ☐ Final written exam
6	5	☐ IPv4 vs. IPv6 ☐ Subnetting and CIDR	IP Addressing	Active learning: It involves active and interactive participation in the learning process through engaging in activities and practical applications.	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam ☐ Monthly test ☐ Final written exam
7	5	☐ Introduction to key protocols (TCP, UDP, HTTP, FTP, etc.) ☐ Role of protocols in communication	Network Protocols	Active learning: It involves active and interactive participation in the learning process through engaging in activities and practical	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam ☐ Monthly test ☐ Final written exam

				applications.	
8	5	☐ Introduction to network security ☐ Common threats and vulnerabilities	Network Security Basics	Active learning: It involves active and interactive participation in the learning process through engaging in activities and practical applications.	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam ☐ Monthly test ☐ Final written exam
9	5	☐ Encryption methods ☐ Firewalls and intrusion detection systems	Advanced Network Security	Active learning: It involves active and interactive participation in the learning process through engaging in activities and practical applications.	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam ☐ Monthly test ☐ Final written exam
10	5	☐ Wi-Fi standards (802.11) ☐ Security protocols (WPA, WPA2)	Wireless Networking	Active learning: It involves active and interactive participation in the learning process through engaging in activities and practical applications.	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam ☐ Monthly test ☐ Final written exam
11	5	☐ DHCP and DNS ☐ Basic network configuration techniques	Network Configuration	Active learning: It involves active and interactive participation in the learning process through engaging in activities and practical applications.	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam ☐ Monthly test ☐ Final written exam
12	5	☐ Tools and techniques for monitoring networks ☐ Performance management	Network Management and Monitoring	Active learning: It involves active and interactive participation in the learning process through engaging in activities and practical applications.	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam ☐ Monthly test ☐ Final written exam
13	5	☐ Overview of cloud computing and IoT ☐ Introduction to Software-Defined Networking (SDN)	Emerging Technologies	Active learning: It involves active and interactive participation in	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam

				the learning process through engaging in activities and practical applications.	☐ Monthly test ☐ Final written exam
14	5	☐ Recap of key concepts ☐ Discussion on future trends in networking	Review and Future Trends	Active learning: It involves active and interactive participation in the learning process through engaging in activities and practical applications.	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam ☐ Monthly test ☐ Final written exam
		To check the learning outputs	Final exam	Active learning: It involves active and interactive participation in the learning process through engaging in activities and practical applications.	☐ Assignments and duties ☐ Practice quiz ☐ Practical exam ☐ Monthly test ☐ Final written exam

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Computer networks
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Coresrra and acamedy

Course Description Form

1. Educational institution/
Ministry of Higher Education and Scientific Research / Northern Technical University / Al-Hawija Technical Institute
2. Scientific Department
Networks and Computer Software
3. Course Name/Code
Calculus TIHA103
4. Available attendance forms
presence
5. Chapter/Year
First semester / 2024/2025
6. Number of study hours (total)

$$30=15*2$$

7. Course administrator's name

Name: Firas Hussein Mariy

Email: husniyah_hwj@ntu.edu.iq

8. Date this description was prepared

2025/7/2

Course objectives (general objectives of the course) .8

Providing learners with basic mathematical knowledge and skills that enhance logical and analytical thinking, enable them to solve problems systematically, and apply mathematical concepts to real-life and .academic situations, while developing academic values such as discipline, precision, and teamwork

: University Sports Course Top Scorer

- **Gain the mathematical knowledge necessary for the prescribed topics and understand the .meanings behind each mathematical concept**
- **Develop an understanding of the nature of the foundations of mathematics as an integrated system of fundamental mathematical concepts, which will provide a significant basis for .understanding other mathematical disciplines**
- **.The learner should be able to know the methods of solving equations**
- **.The learner will be able to solve partial differential equations**
- **.The student should be able to calculate the area and volume of objects**

.The learner will be able to solve all differential and integral problems

Course outcomes , teaching, learning and assessment methods .9 Course outcomes identification: It is a set of knowledge, skills and values that the course seeks to achieve in students . Its importance: It provides the learner with a clear idea of what he will be able to do after completing the course, and helps in designing and evaluating academic courses. How is it determined? The course outcomes are determined based on the objectives of the academic program to which the course belongs.		
Outputs	Teaching and learning methods	Evaluation methods
Knowledge : outputs Acquiring basic mathematical concepts _1 .and terms Understanding and interpreting_2 mathematical theories and laws Distinguishing between different types of_3 .mathematical problems	.Theoretical lectures _1 .Explanation using examples_2 .Presentations _3 Using visual and _4 .interactive means	• Test theory • Oral questions • Safiya's participation • Discussions and written questions
Second : Skills outputs: Solve mathematical problems using _1 .correct and systematic steps Applying mathematical concepts in real- _2 .life situations	Solving classroom and _1 .individual exercises .Problem-based learning _2 Using educational programs_3 such asExcelr Mathematical . .applications in practical life	1 - Evaluate practical performance in .solving problems

Using mathematical tools or software in _3 .analysis and calculation		Homework and -2 .practical projects . Practical tests -3 Skills - based -4 .assessment
Third: Values and Attitudes : Commitment to accuracy and discipline -1 .in solving exercises and problems Enhancing the value of cooperation and -2 .teamwork Respecting different opinions in -3 .mathematical thinking methods	Open and respectful -1 .discussions in class Cooperative learning in -2 .groups Providing life situations -3 that reinforce values through .mathematics Raising open questions with -4 . more than one solution	Classroom observation -1 of behavior .And discipline Colleagues evaluate -2 .each other Individual reports on -3 educational experience .and behavior Self-assessment -4 .questionnaires

Course structure (theoretical and practical vocabulary) .10

						Chapter title
	Technologies	Teaching method	Main title	Subtitle	theoretical	week
	Explanation Questions , and	a lecture	Trigonometric ratios	Properties of trigonometric ratios	2 hours	First week

		,Answers Discussion					
		Explanation Questions , and ,Answers Discussion	a lecture	logarithms	logarithms	2 hours	The second week
		Explanation Questions , and ,Answers Discussion	a lecture	Differentiation and derivation	Differentiation and derivation	2 hours	The third week
		Explanation Questions , and ,Answers Discussion	a lecture	Differentiation and derivation	Derivative laws of algebraic functions	2 hours	Week 4
		Explanation Questions , and ,Answers Discussion	a lecture	Differentiation and derivation	composite function (chain rule)	2 hours	Week 5
		Explanation Questions , and	a lecture	Differentiation and derivation	Practical exercises	2 hours	Week 6

		,Answers Discussion					
		Explanation Questions , and ,Answers Discussion	a lecture	Differentiation and derivation	Derivative of implicit functions, derivative of trigonometric functions, and inverse trigonometric functions	2 hours	The seventh week
		Explanation Questions , and ,Answers Discussion	a lecture	Differentiation and derivation	Practical exercises	2 hours	The eighth week
		Explanation Questions , and ,Answers Discussion	a lecture	Derivation	Derivation rules	2 hours	Week 9
		Explanation Questions , and ,Answers Discussion	a lecture	Derivation	Completing the derivation rules	2 hours	The tenth week
		Explanation Questions ,	a lecture	Derivation	Derivative of logarithmic functions	2 hours	Week eleven

		and ,Answers Discussion					
		Explanation Questions , and ,Answers Discussion	a lecture	Derivation	Practical exercises	2 hours	The twelfth week
		Explanation Questions , and ,Answers Discussion	a lecture	integration	integration	2 hours	thirteenth week
		Explanation Questions , and ,Answers Discussion	a lecture	integration	Complete integration	2 hours	Fourteenth week
		Explanation Questions , and ,Answers Discussion	a lecture	integration	Practical exercises	2 hours	The fifteenth week

Curriculum Development Plan

**Continuously updating the curriculum to keep pace with developments in the labor
:market (Curriculum Update Committee, Scientific Committee) such as**

-1 Course analysis and needs identification (review of current educational outcomes) -2 .Updating scientific content and diversifying teaching and learning methods . Follow up on scientific developments and improve evaluation methods -3	
Infrastructure-11	
Classrooms, playgrounds and workshops	Available
1- Required textbooks	Available
2- Main References (Sources)	Thomas Calculus 12th edition George B. Thomas. Maurice D. Weir. Joel R. Hass .
أ) Recommended books and references (scientific (.journals, reports, etc	Journal of the American Mathematical Society (JAMS (.Mathematics for Science and Engineering - Author: Adnan Yousef Al-Atoum Real Analysis - Dr. Abdul Karim Adwan Introduction to Linear Algebra - Dr. Mohamed Rizk Basics of Statistics - Dr. Mohamed Fathy
ب) ,Electronic references ,websites	Khan Academy Free Interactive Lessons – Coursera Mathematics courses from prestigious universities

	edX Massive Open Courses – Project Euclid Access to mathematics and statistics research ArXiv Archive of Recent Research in Mathematics –
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Course Description Form

1. Name
Mathematics
2. Course Code
TIAH100
3. Available attendance forms
Presence
4. Chapter/Year
First semester / 2024/2025
5. Number of study hours (total) / Number of units
30 2hours/ Two units
6. Course administrator's name

Name: Firas Hussein Mariy Email: husniyah_hwj@ntu.edu.iq
7. Date this description was prepared
2025/7/2
Course objectives (general objectives of the course) .8 Providing learners with basic mathematical knowledge and skills that enhance logical and analytical thinking, enable them to solve problems systematically, and apply mathematical concepts to real-life and .academic situations, while developing academic values such as discipline, precision, and teamwork : University Sports Course Top Scorer • Gain the mathematical knowledge necessary for the prescribed topics and understand the .meanings behind each mathematical concept • Develop an understanding of the nature of the foundations of mathematics as an integrated system of fundamental mathematical concepts, which will provide a significant basis for .understanding other mathematical disciplines • .The learner should be able to know the methods of solving equations • .The learner will be able to solve partial differential equations • .The student should be able to calculate the area and volume of objects .The learner will be able to solve all differential and integral problems
Course outcomes , teaching, learning and assessment methods .9 Course outcomes

identification: It is a set of knowledge, skills and values that the course seeks to achieve in students .
Its importance: It provides the learner with a clear idea of what he will be able to do after completing the course, and helps in designing and evaluating academic courses.
How is it determined? The course outcomes are determined based on the objectives of the academic program to which the course belongs.

Outputs	Teaching and learning methods	Evaluation methods
Knowledge : outputs Acquiring basic mathematical concepts _1 .and terms Understanding and interpreting_2 mathematical theories and laws Distinguishing between different types of_3 .mathematical problems	.Theoretical lectures _1 .Explanation using examples _2 .Presentations _3 Using visual and _4 .interactive means	• Test theory • Oral questions • Safiya's participation • Discussions and written questions
Second : Skills outputs: Solve mathematical problems using _1 .correct and systematic steps Applying mathematical concepts in real- _2 .life situations Using mathematical tools or software in _3 .analysis and calculation	Solving classroom and _1 .individual exercises .Problem-based learning _2 Using educational programs_3 such asExcelr Mathematical . .applications in practical life	1 - Evaluate practical performance in .solving problems Homework and -2 .practical projects . Practical tests -3 Skills - based -4 .assessment

Third: Values and Attitudes : Commitment to accuracy and discipline -1 .in solving exercises and problems Enhancing the value of cooperation and -2 .teamwork Respecting different opinions in -3 .mathematical thinking methods	Open and respectful -1 .discussions in class Cooperative learning in -2 .groups Providing life situations -3 that reinforce values through .mathematics Raising open questions with -4 . more than one solution	Classroom observation -1 of behavior .And discipline Colleagues evaluate -2 .each other Individual reports on -3 educational experience .and behavior Self-assessment -4 .questionnaires
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Course structure (theoretical and practical vocabulary) .10

						Chapter title
	Technologies	Teaching method	Main title	Subtitle	theoretical	week
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	Explanation Questions , and	a lecture	logarithms	logarithms	2 hours	The second week

		,Answers Discussion					
		Explanation Questions , and ,Answers Discussion	a lecture	Differentiation and derivation	Differentiation and derivation	2 hours	The third week
		Explanation Questions , and ,Answers Discussion	a lecture	Differentiation and derivation	Derivative laws of algebraic functions	2 hours	Week 4
		Explanation Questions , and ,Answers Discussion	a lecture	Differentiation and derivation	composite function (chain rule)	2 hours	Week 5
		Explanation Questions , and ,Answers Discussion	a lecture	Differentiation and derivation	Practical exercises	2 hours	Week 6
		Explanation Questions , and	a lecture	Differentiation and derivation	Derivative of implicit functions, derivative of trigonometric functions, and	2 hours	The seventh week

		,Answers Discussion			inverse trigonometric functions		
		Explanation Questions , and ,Answers Discussion	a lecture	Differentiation and derivation	Practical exercises	2 hours	The eighth week
		Explanation Questions , and ,Answers Discussion	a lecture	Derivation	Derivation rules	2 hours	Week 9
		Explanation Questions , and ,Answers Discussion	a lecture	Derivation	Completing the derivation rules	2 hours	The tenth week
		Explanation Questions , and ,Answers Discussion	a lecture	Derivation	Derivative of logarithmic functions	2 hours	Week eleven
		Explanation Questions , and	a lecture	Derivation	Practical exercises	2 hours	The twelfth week

Infrastructure-11	
Classrooms, playgrounds and workshops	Available
1- Required textbooks	Available
2- Main References (Sources)	Thomas Calculus 12th edition George B. Thomas. Maurice D. Weir. Joel R. Hass .
أ) Recommended books and references (scientific (.journals, reports, etc	Journal of the American Mathematical Society (JAMS (.Mathematics for Science and Engineering - Author: I Adnan Yousef Al-Atoum Real Analysis - Dr. Abdul Karim Adwan Introduction to Linear Algebra - Dr. Mohamed Rizk Basics of Statistics - Dr. Mohamed Fathy
ب) ,Electronic references ,websites	Khan Academy Free Interactive Lessons – Coursera Mathematics courses from prestigious universities edX Massive Open Courses – Project Euclid Access to mathematics and statistics research ArXiv Archive of Recent Research in Mathematics –

Arabic Language	
Course Name	
Arabic Language	
Course Code	
NTU 103	
Available attendance forms	
Traditional attendance (in person)2. Blended learning	
1. semester/year	
2025-2024 Level 1, First Semester	
2. Number of study hours (total) */ Number of unites	
30 hours / Tow unites	
3. Date this description was prepared	
2025/6/11	
(Goals Course (Objectives) Public For the decision maker -8	
This course aims to develop students' language skills in understanding, expression, and writing in Modern Standard Arabic, enabling them to use the language correctly in academic and professional contexts, with a focus on written .and oral communication skills in the workplace	

B - Objectives Skills Private As scheduled . Writes grammatically and spelling correctly. Writes professional letters and reports in correct language. He speaks Modern Standard Arabic in formal situations.
C-Objectives emotional and the value Shows interest in improving his language skills. He is committed to using the Arabic language in a professional and respectful manner. .It enhances his pride in his Arabic language as a language of communication and identity
Methods education and learning - Lessons theory Intense, Model Data with films Educational
Evaluation methods- Commitment And perseverance on the audience, reports , homework and exams Daily And monthly, exam end the chapter

.9Outputs The decision and methods education and learning and evaluation
A-Objectives cognitive Explains the basic rules of the Arabic language (grammar, morphology, spelling). Distinguish between types of texts and linguistic structures. .Defines correct styles in formal writing

The structure of the Arabic language course (theoretical vocabulary) -

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watch es	week
My formation and conclusion	theoretical	Introduction to Grammatical - Mistakes The Closed Taa, The ,Long Taa and The Open Taa	Distinguish between the closed taa, the open taa, and the long taa in terms of form and function. Corrects common mistakes in using different ta's in Arabic words.	2	1
My formation and conclusion	theoretical	Rules for writing the extended and shortened alif - solar and lunar letters	Distinguish between the extended alif (a) and the shortened alif (i) in terms of written usage. It applies the rules for writing the letter Alif according to its position and linguistic origin.	2	2
My formation and conclusion	theoretical	Dad and Tha	Defines the solar and lunar letters. The definite article "al" is used correctly depending on the type of the first letter .in the word	2	3
My formation and conclusion	theoretical	Writing the hamza	Distinguish between the sounds of the letters Dad and Dha in terms of pronunciation and usage. Corrects common mistakes in writing .words that contain one of the two letters	2	4
My formation and conclusion	theoretical	punctuation marks	He recognizes the types of hamzas ,disconnected, connected, medial) (extreme. Apply the correct spelling rules for writing the hamza in its various .positions	2	5
My formation and conclusion	theoretical	,Noun verb, and the difference	Identify the types of punctuation marks and their uses.	2	6

		between them	Use punctuation accurately in writing to improve clarity of meaning.		
My formation and conclusion	theoretical	Effects	Distinguish between noun and verb in terms of meaning and structure. Classifies words in sentences according to their type: noun, verb, or particle	2	7
My formation and conclusion	theoretical	Number	Explains the types of objects and their functions in the sentence. Analyze sentences to extract different objects	2	8
My formation and conclusion	theoretical	Common language errors application s	Distinguish between numbers in terms of type (singular, compound, conjoined) and agreement. Uses number and countable rules correctly in different contexts	2	9
My formation and conclusion	theoretical	Noon and - Tanween Meanings of Preposition s	Identify the most common linguistic errors in writing and expression. Corrects common language errors through practical activities and models	2	10
My formation and conclusion	theoretical	Formal aspects of administrative discourse	Distinguish between the letter noon and tanween in terms of pronunciation and function. Explains the meanings of prepositions in different contexts	2	11
My formation and conclusion	theoretical	Language of administrative discourse	Learn the basic formal components of administrative letters. Adhere to the formal elements when writing an administrative letter (header ,address, date, signature, etc	2	12
My formation and conclusion	theoretical	Introduction to Grammatical - Mistakes The Closed Taa, The ,Long Taa and The Open Taa	Uses formal and direct language that is appropriate to the nature of administrative discourse. Avoid slang and grammatical errors when writing formal letters	2	13-14
My formation and conclusion	theoretical	Examples	Analyzes various forms of ,administrative correspondence (request	2	15

		of administrat ive correspond ence	(.complaint, report, etc. Writes administrative correspondence forms in a correct manner in terms of .form and content		
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Arabic language infrastructure -	
Available	Classrooms
	Required textbooks -1
	Main references (sources) -2
	A- Recommended books and references (.Scientific journals, reports, etc)
	B - Electronic references, Internet sites