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

Academic Program and Course Description Guide

2025

Republic of Iraq
Ministry of Higher Education and Scientific Research
Supervision and Scientific Evaluation Directorate
Department of Quality Assurance and Academic Accreditation

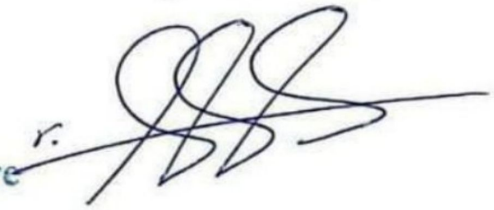
Academic Program Specification from for the Academic Year 2024-2025

University : North Technical University

College/Institute: Technical Institute/Hawija

Department: Mechanical techniques

Data of Form Completion: 2024/10/16



Signature

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Introduction:

The educational program is a coordinated and organized package of courses that include procedures and experiences organized into study modules. The primary purpose is to build and refine graduates' skills, making them qualified to meet the requirements of the labor market. This program is reviewed and evaluated annually through internal or external audit procedures and programs, such as the External Examiner Program.

The academic program description provides a brief summary of the program's main features and courses, indicating the skills students are working to acquire, based on the objectives of the academic program. The importance of this description is evident as it represents the cornerstone of program accreditation. It is co-written by teaching staff under the supervision of the academic committees in the academic departments.

This second edition of the guide includes a description of the academic program after updating the vocabulary and paragraphs of the previous guide in light of the developments in the educational system in Iraq. This guide included a description of the academic program in its traditional form (annual, semester). It also adopted the academic program description circulated pursuant to the Department of Studies Circular T 2906/3 on May 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 brief 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 brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They 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 (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

1. Program vision
Creating a technical (practical) ecosystem , as the department works towards expanding the base of technical education with its branches and modern applications , in order to become a pioneer in providing accredited technical services with solid science to serve the community.

2. Program message
The Department of Mechanical Technology adopts a general message based in its general form on the framework of technical education in Iraq, a message that it seeks to achieve every year to highlight the distinctive and creative aspect of the department. The general objectives focus on graduating national technical cadres at a level of education and training that are capable of absorbing modern technology systems and supporting the process of technical development to keep pace with the rapid and important global technical developments in this field.

3. Program objectives
The production branch aims to prepare technical personnel who will be a link between the specialist and the skilled worker. The department prepares and equips the graduate and provides him with theoretical, applied and practical information to enable him to carry out the tasks assigned to him. The welding department aims to prepare technical personnel who will be a link between the specialist and the skilled worker. The department prepares and equips the graduate and provides him with theoretical, applied and practical information to enable him to carry out the work assigned to him.

4. Programmatic accreditation
Under study

5. Other external influences
The presence of a sponsoring entity that contributes to: 1. Linking the program to the labor market or community 2. Providing financial, logistical, or training support 3. Facilitating employment and practical training 4. Providing ongoing guidance for the program

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)	(113 ÷ 26)23 = 100 ×	**26**	2	**24**	**University**
% (22 – 16)	(113 ÷ 18)16 = 100 ×	**18**	4	**41**	**Institute**
% (74 – 63)	(113 ÷ 69)61 = 100 ×	**69**	12	**57**	**Department**
% 100		**113**	**Total Graduation**		

Department of Mechanical Technology / Oil Equipment Welding Branch / First Level - First Semester of the Academic Year 2024-2025

Course type	Requirement code	Number of units	Number of practical hours	Number of theoretical hours	Course name	Requirement Type
					Name in English	
—	NTU 100	2	---	2	Democracy and Human Rights	University
—	NTU 101	2	---	2	English Language	University
—	NTU 102	2	1	1	Computer application	University
paved	TIHA 110	2	---	2	Mathematics 1	Institute
paved	TIHA 112	3	3	---	Engineering Drawing1	Institute
paved	TIHA 113	3	3	---	Workshops 1	Department
paved	METP 120	4	2	2	Engineering Mechanics 1	Department
paved	MTWO122	4	2	2	Welding Theory (1)	Department
paved	METP 124	2	---	2	Properties of Materials 1	Department
—	METP 128	3	2	1	Electrical Technology	Department

Department of Mechanical Technology / Oil Equipment Welding Branch / First Level - Second Semester of the Academic Year 2024-2025

Course type	Requirement code	Number of units	Number of practical hours	Number of theoretical hours	Course name	Requirement Type
					Name in English	
—	NTU 100	2	1	1	Sports	University
—	NTU 101	2	---	2	Arabic Language	University
complementary	NTU 102	2	---	2	Mathematics 2	University
complementary	TIHA 110	3	3	---	Engineering Drawing 2	Institute
complementary	TIHA 112	3	3	---	Workshops 2	Department
complementary	METP 120	4	2	2	Engineering Mechanics 2	Department
complementary	METP123	4	2	2	Welding Theory 2	Department
complementary	METP 125	2	---	2	Properties of Materials 2	Department
—	METP 129	2	---	2	Material resistance	Department

قسم التقنيات الميكانيكية/ فرع لحام المعدات النفطية / المستوى الأول- الفصل الأول للعام الدراسي 2024-2025

نوع المتطلب	اسم المقرر		عدد الساعات النظرية	عدد الساعات العملية	عدد الوحدات	رمز المتطلب
	الاسم باللغة العربية	الاسم باللغة الانكليزية				
جامعي	الديمقراطية و حقوق انسان	Democracy and Human Rights	2	---	2	NTU 100
جامعي	لغة إنكليزية	English Language	2	---	2	NTU 101
جامعي	مبادئ الحاسوب	Computer application	1	1	2	NTU 102
المعهد	رياضيات 1	Mathematics 1	2	---	2	TIHA 110
المعهد	رسم هندسي – اوتوكاد 1	Engineering Drawing1	---	3	3	TIHA 112
المعهد	ورش 1	Workshops 1	---	3	3	TIHA 113
القسم	ميكانيك هندسي 1	Engineering Mechanics 1	2	2	4	METP 120
القسم	نظرية لحام (1)	Welding Theory (1)	2	2	4	METP122
القسم	خواص مواد 1	Properties of Materials 1	2	---	2	METP 124
القسم	تكنلوجيا كهرباء	Electrical Technology	1	2	3	METP 128

قسم التقنيات الميكانيكية/ فرع لحام المعدات النفطية / المستوى الأول- الفصل الثاني للعام الدراسي 2024-2025

نوع المتطلب	اسم المقرر		عدد الساعات النظرية	عدد الساعات العملية	عدد الوحدات	رمز المتطلب
	الاسم باللغة العربية	الاسم باللغة الانكليزية				
جامعي	رياضة	Sports	1	1	2	NTU 100
جامعي	لغة العربية	Arabic Language	2	---	2	NTU 101
جامعي	رياضيات 2	Mathematics 2	2	---	2	NTU 102
المعهد	رسم هندسي – اوتوكاد 2	Engineering Drawing 2	---	3	3	TIHA 110
المعهد	ورش 2	Workshops 2	---	3	3	TIHA 112
القسم	ميكانيك هندسي 2	Engineering Mechanics 2	2	2	4	METP 120
القسم	نظرية لحام 2	Welding Theory 2	2	2	4	METP123
القسم	خواص مواد 2	Properties of Materials 2	2	---	2	METP 125
القسم	مقاومة مواد	Material resistance	2	---	2	METP 129

Department of Mechanical Technology / Petroleum Equipment Welding Branch / First Level - First Semester of the Academic Year 2024-2025					
Requirement code	Number of units	Number of practical hours	Number of theoretical hours	Course name Name in English	Requirement Type

NTU 100	2	---	2	Democracy and Human Rights	University
NTU 101	2	---	2	English Language	University
NTU 102	2	1	1	Computer application	University
TIHA 110	2	---	2	Mathematics 1	Institute
TIHA 112	3	3	---	Engineering Drawing1	Department
TIHA 113	3	3	---	Workshops 1	Department
METP 120	4	2	2	Engineering Mechanics 1	Department
MTWO122	4	2	2	Welding Theory (1)	Department
METP 124	2	---	2	Properties of Materials 1	Department
METP 128	3	2	1	Electrical Technology	University

Department of Mechanical Technology / Petroleum Equipment Welding Branch / First Level – Second Semester of the Academic Year 2024-2025

Requirement code	Number of units	Number of practical hours	Number of theoretical hours	Course name Name in English	Requirement Type
NTU 100	2	1	1	Sports	جامعي
NTU 101	2	---	2	Arabic Language	جامعي
NTU 102	2	---	2	Mathematics 2	جامعي
TIHA 110	3	3	---	Engineering Drawing 2	المعهد
TIHA 112	3	3	---	Workshops 2	المعهد
METP 120	4	2	2	Engineering Mechanics 2	القسم
MTWO123	4	2	2	Welding Theory 2	القسم
METP 125	2	---	2	Properties of Materials 2	القسم
METP 129	2	---	2	Material resistance	القسم

Mechanical Technology Department / Production Branch / Second Level - First Semester of the Academic Year 2024-2025

Course type	Requirement code		Number of	Number of	Course name	Requirement Type

		Number of units	practical hours	theoretical hours	Name in English	
—	NTU 220	2	1	1	Computer Applications	University
—	NTU 200	2	---	2	English Language	University
—	NTU 202	3	---	2	Baath Party Crimes	University
—	NTU 201	2	---	2	Professional Ethics	University
—	TIHA 222	2	---	2	Occupational Management and Safety	Institute
paved	METP 210	3	3	---	Industrial Drawing 1	Department
paved	METP 212	3	3	---	Workshops 1	Department
paved	METP 214	3	---	3	Machine Parts Technology 1	Department
paved	METP 216	4	2	2	Metals 1	Department
paved	METP 222	4	2	2	Manufacturing Processes 1	Department

Mechanical Technology Department / Production Branch / Second Level - Second Semester of the Academic Year 2024-2025						
Course type	Requirement code	Number of units	Number of practical hours	Number of theoretical hours	Course name Name in English	Requirement Type
—	NTU 200	2	---	2	Arabic Language	University
—	NTU 101	4	4	---	Project	University
complementary	METP 211	3	3	---	Industrial Drawing 2	Department
complementary	METP 213	3	3		Workshops 2	Department
complementary	METP 215	4	2	2	Machine Parts Technology 2	Department
complementary	METP 217	4	2	2	Metals 2	Department
—	METP 223	4	2	2	Manufacturing Processes 2	Department

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	Mechanical techniques /
3.Program Title	Technical Sciences
4.Title of Final Award	Technical Diploma
5. The school system: Annual / Courses / Other Annual	annual
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	4-20216-10
9. Aims of the Program	
The production branch aims to prepare the technical staff that will be a link between the specialist and the skilled worker. The department prepares and prepares the graduate and provides him with theoretical, applied and practical information to be able to carry out the work entrusted to him.	
The welding branch aims to prepare the technical staff that will be a link between the specialist and the skilled worker. The department prepares and prepares the graduate and provides him 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 .A A1. Understanding metallic materials and non-metallic structures. A2. Understanding chemical and physical properties of metallic and non-metallic materials. A3. Understand computer architect A4. Understand Allocation techniques A5. Understand the operating system, basic tasks, memory storage and management A6. Understanding of the importance of manufacturing process to the economy and design
Subject-specific skills .B B1. Classified metallic and non-metallic materials.. B2. Heat treatments for aluminum , magnesium and copper alloys and ceramics materials B3. Use the drawing instruments; draw two dimensional drawings, isometric drawings. B4. Present with basic skills for 2-D and 3-D vectors and concept of force, moment and equilibrium.
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
Written examination :To assess knowledge , understanding and skills 1- (First half of the academic year , Mid-year exam, Second half of the academic year, final exam the academic year) . Oral examination: To assess knowledge, skills and intellectual functions, and attitude. 2- Assignments & other activities. 3- Quizzes (Shock exams). 4- homwork. 5-
Thinking Skills .C

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
Lectures using white board and data show 1- Experimental part 2- Discussion about the practical application 3-
Assessment methods
1 -written examination oral examination 2- quizzes 3- 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	**Manufacturing Processes(1)**	primary																
	Material Properties	primary																
SECOND	**Machine Parts**	primary																
	Metallurgy	primary																

course description form

Course description

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

1. Teaching Institution	Northern Technical University/ Hawija Technical Institute
2.University Department/Centre	Mechanical techniques /
3. Course name/code	
4. Forms of attendance available	
5. Semester/year	
6. Number of hours of study (total)	
7. Date this description was prepared	
8. aims of the course	
9. Graduating an intermediate cadre capable of working in the fields of manufacturing and production to contribute to the following works: 1- The ability to use different measuring tools. 2- Preparing plumbing models. 3- Supervising the conduct of dumping operations, inspecting and inspecting defects of castings, and dealing with metal melting furnaces. 4- Supervising welding operations, inspecting welds and inspecting for defects. 5- Supervising the blacksmithing operations.	

10. Course outcomes and methods of teaching, learning and assessment
A- Cognitive goals 1- Learn about measurement templates and their uses, their types, and how to use them 2- Definition of measurement and units of measurement, error and its causes 3- Comparison devices: their uses, types, mechanical, electronic
B - the skill objectives of the course. 1- The skill of introducing the student to the various instruments and measuring devices in the laboratory 2- The skill of measuring using the vernier foot, recognizing the types of footsteps 3- The skill of measuring angles, identifying the devices and the number used to measure angles
Teaching and learning methods
1- Theoretical lectures 2- Laboratory Experiments 3- Scientific visits
Evaluation methods
1- Theoretical test 2- The practical test 3- Reports
C- Emotional and value goals C1- Increase the student's self-confidence C 2- Managing time and not wasting it C 3- Increasing the spirit of competition
Teaching and learning methods
1- Giving lectures 2- Discussion sessions 3- Using modern means (calculator and internet)
Evaluation methods
1- practical test 2- Discussion sessions
D - Transferred general and qualifying skills (other skills related to employability and personal development). 1- The ability to learn about measurement templates and their uses, their types, how to use them 2- Definition of measurement and units of measurement, error and its causes 3- Comparison devices: their uses, types, mechanical, electronic

11. Course Structure					
week	hours	Required Learning Outcomes	Unit Name/Subject Method	Teaching Method	Assessment method
1	8	Background Information	Definition of measurement and units of measurement, error and its causes, methods of measuring main dimensions, simple conveying measuring devices.	Theoretical lecture + practical experience	Paper test + practical test
2	8	Knowledge of measuring tools	Measurement feet (furnaces), their parts, uses, and types.	Theoretical lecture + practical experience	Paper test + practical test

3	8	Knowing Micrometers	Micrometers, their types, uses, and how to use them.	Theoretical lecture + practical experience	Paper test + practical test
4	8	Knowledge of measurement templates	Measurement templates and their uses, types, how to use them.	Theoretical lecture + practical experience	Paper test + practical test
8-5	8	Knowing the measure of angles	Measure angles	Theoretical lecture + practical experience	Paper test + practical test
12 – 9	8	Knowledge of models and plumbing	How to measure the elements of spirals Comparison devices and their uses optical device	Theoretical lecture + practical experience	Paper test + practical test
18 – 12	8	Knowledge of molds and plumbing	Models, their types Tools and devices used to make the model Plumbing, a brief history sandy plumbing	Theoretical lecture + practical experience	Paper test + practical test
23 –19	8	Knowledge of electric ovens	infantile molds wax plumbing centrifugal plumbing Metal melting	Theoretical lecture + practical experience	Paper test + practical test
26 – 24	8	Knowledge of Right Welding	electric ovens casting cleaning Welding, basics of metal welding hot pressure welding Fusion welding	Theoretical lecture + practical experience	Paper test + practical test
30-27	8	Knowledge of electric arc welding	Right welding and left welding Electric arc welding Electric arc welding Using protective gases	Theoretical lecture + practical experience	Paper test + practical test

اخلاقيات المهنة

1) Course name
Professional ethics
2) Course code
NTU201
3) Available attendance forms
My presence
4) semester/year
Decisions
5) Number of study hours (total) / Number of units
30 =15*2/ 2 units
6) Date this description was prepared
-6-2025 24
7) Course supervisor name
the name: Jaber Zain Al-Abidin, the water carrier :Emailjaber_hwj@Qntu.edu.iq
8) Course objectives (general objectives of the course)
1- Learning about moral values in general **2-** .Identify corporate ethical values in particular **3-** .Learn about the laws that govern corporate values **4-** Working in accordance with ethical values within the organization by .identifying rights and duties **5-** Commitment to the rights and duties stipulated by law as evidence of .commitment to professional ethics **6-** Avoid all violations stipulated by law
9\ Course outcomes , teaching, learning and assessment methods **Course outcomes** **Knowing and understanding the basic concepts of professional ethics and their . role in the work environment** **Distinguishing the ethical principles associated with professional practices in -2 . various disciplines** **Analyzing ethical situations related to work contexts and making responsible -3 . professional decisions** **Commitment to social responsibility and respect for corporate values in the -4 . work environment** **Developing ethical communication skills within the team and evaluating the -5 . impact of unethical behavior on individuals and institutions**

Definition: It is a subject of study that examines the ethical principles and values that govern individual behavior in professional practice, guiding them toward making responsible decisions based on ethical rules and agreed-upon behavioral standards within the framework of the profession. It aims to instill a commitment to professional responsibility and integrity, and to .promote respect for laws and regulatory standards

Its importance:

1. **Promoting integrity and professional responsibility among students before they enter the labor market.**
2. **Preparing professional competencies capable of making ethical decisions in the face of real challenges.**
3. **Building a work environment based on trust and mutual respect within organizations.**
4. **Achieving sustainable development by linking professional behavior to higher human values.**

How is it determined?

1. **Commitment to laws , regulations and instructions, especially codes of .conduct**
2. **.Refer to international ethical codes**
3. **.Analysis of the nature of the profession and its ethical requirements**
4. **.Identify the values associated with the profession**
5. **Reputation protection Avoid legal and media problems**

Evaluation methods	Teaching and learning methods	Outputs
1. Theoretical tests **2. My work performance evaluation** **3. Safiya's participation** **4. Research reports**	**1. Theoretical lectures** **2. Group discussions** **3. Case studies**	**أ- knowledge** **A1 - Explain the basic concepts of professional ethics** **A2 - Identify the basic ethical values that govern professional practices, such as honesty and .integrity** **A3 - Familiarity with local and international .professional regulations, instructions and laws** **A4- Recognizing the importance of professional commitment in order to enhance trust**

1. Short and final tests 2. theoretical training 3. Projects or case studies that reflect the practical and theoretical application of ethical values.	1. Interactive lectures 2. Real-life case studies 3. Case studies	**B - Skills** Knowledge, understanding and explanation - B1 of basic concepts related to professional ethics B2 - Identifying ethical codes and professional behaviors. B3 - Explaining the importance of adhering to ethical values B4 - Analyze realistic professional situations with an ethical dimension and suggest appropriate solutions.
1. Continuous assessment 2. theoretical training 3. Final evaluation	1. Interaction and application 2. Practicing professional communication skills 3. Collective learning within a single team and bearing ethical responsibility	**C-Values** Commitment to the culture of professional ethics -A1 Bearing individual and collective responsibility -A2 applying the rules of conduct in instructions Respecting regulations and without compromise -A3 the spirit of initiative in spreading A4- Enhancing awareness of professional ethics.

10) Course structure **(Theoretical Vocabulary)**

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Short test objective) (questions on topics related to professional ethics through evaluation of answers	1. Show the film Professional" "Ethics. 2. Discussing real-life cases and central questions about how members of society adhere to ethics.	What are professional ethics?	Learn the concepts and definitions of professional ethics	2	the first

Same method as above	Asking questions and writing answers	The importance of professional ethics	Recognizing the importance of professional ethics and their impact on social relations	2	the second
Evaluate 'students performance during the simulation application) + accuracy response (time.	Same method as above	Ethical thought and professional behavior	Understanding the concept of professional codes of conduct, its rules and elements	2	the third
, evaluation Tests Skills	Theoretical , workshops simulations	Moral dependency and social responsibility	Explaining social responsibility and its most important principles	2	Fourth
a test ,written evaluation comprehensive For skills The student	,Written test performance assessment	Important terms about professional ethics	Important discussions about ,duties, jobs, work ,ethics, profession and their importance, the .work environment	2	Fifth
Written test , case study analysis	Lecture, case study	Organizations and Professional Ethics	Learn about the types of organizations and the impact of ethics in the work .environment	2	Sixth
performance evaluation	,Presentations workshops	worksheet	Work on the topics studied in .the past weeks	2	Seventh
,evaluation a test Editorial	,Training interactive lectures	Job and professional ethics	Knowing the nature of the public function ,and its elements and getting to know the public employee and his role in enshrining professional ethics	2	The eighth

Written test, case analysis	**, Case studies lectures**	**Employee rights and obligations**	**Learn about the most important rights and duties of a public employee , which the employee .must adhere to**	2	Ninth
Written ,test comprehens ive assessment of student skills	**,Written test performance assessment**	**Law and Professional Ethics**	**Understanding administrative law by studying the employee's relationship with professional ethics**	2	tenth
performanc e evaluation	**,Lectures training**	**Educational ethics**	**Learn about the types of ,education whether primary or higher, and .what its ethics are**	2	eleve nth
Written ,test discussion questions	**Interactive ,lectures discussions**	**Different ethics**	**Learn about the codes of ethics of ,many professions which focus on the ethics of each .profession**	2	twelft h
a test ,Editorial analysis studies the condition	**Same methods as above**	**Integrity and professional ethics**	**Learn about the topic of integrity and all related topics and their relationship to .professional ethics**	2	thirte enth
performanc e evaluation	**Same methods as above**	**Political ethics**	**Learn about the ethics of political work in ancient history and their responsibilities .towards society**	2	fourte enth
,evaluation a test Editorial	**The student presents the paper and discusses it with the professor and .the student**	**worksheet**	**Worksheets for topics studied in previous weeks and lectures**	2	fiftee nth

11) Curriculum Development Plan	
Continuously updating the curriculum to keep pace with developments in the labor market :(Curriculum Update Committee, Scientific Committee) such as . Updating the curriculum to keep pace with developments in the field of professional ethics −1 .Holding scientific seminars with specialists in the field −2 .Follow up on social developments related to the rules of professional conduct −3	
12) infrastructure	
There are classrooms equipped to accommodate students and prepared to provide a suitable .learning environment	**Classrooms**
Professional Ethics Lectures Binder Professional Ethics / Dr. Salem Mohammed	**1- Required textbooks**
Organizational Theory / Dr. Muhammad Hassan Al-Shamaa	**2- Main References (Sources)**
Administrative Law / Dr. Mazen Lilo Radi	**Recommended books and references (scientific (.journals, reports, etc**
Principles of Professional Ethics	

1) Course name

Laboratories (mechanical workshops)

2) Course code

THIA112

3) Available attendance forms

- .Weekly lesson schedule (practical)

Discussions, scientific seminars, and other extracurricular activities

4) semester/year

- First and second

5) Number of study hours (total) / Number of units

/ hours 963 units

6) Date this description was prepared

2025/6/10

7)

Dr. Omar Khalil Ahmed :Name
:Email dr.omer.k.ahmed@ntu.edu.iq

8) Course objectives (general objectives of the course)

- Teaching the student to know the work of filing, welding, blacksmithing, lathe and carpentry

9) Course outcomes , teaching, learning and assessment methods

Evaluation methods	Teaching and learning methods	Outputs
+ Practical tests) (reports	Explanation of basic concepts tool names, types) ,of metals (operating methods Direct application to machines and devices inside the workshop Practical exercises ,such as: filing) ,shaping, welding (lathe, measuring	**Cognitive objectives** 1 Training the student on correct filing work and . how to use measuring tools, files, sawing, and .drilling 2. Teaching the student to train in the welding workshop on the various tools, equipment and . workshop devices available in the How to plan on metal sheets, how to cut, assemble .3 and weld. Training the student on different lathe machines and training on the necessary measuring .tools
Test students practically on the performance of .specific skills	Direct practical training on machines and tools .	**Course Skill Objectives** 1. .Use hand tools and equipment accurately 2. employment machines simple

	Perform exercises ,such as: filing . drilling, welding Display and explain real samples of parts or . machines Use simulation software or . educational videos	3. procedure Operations Measurement And the adjustment 4. to implement Operations Mechanical Basic 5. reading plans Engineering simple 6. application procedures Security And safety 7. installation And unlock Parts Mechanical 8. Diagnosis Malfunctions Mechanical simple 9. to organize place the job And preservation on Tools
Self-assessment) ,and peer assessment participation and (contribution	Reports on) scientific developments in the field of ,specialization asking practical and inferential (questions	C- Values .Learn about all types of hand tools -A1 .A2- Understand how to choose the right hand tools A3- Handling equipment and devices safely and .correctly

10) Course structure

Practical vocabulary

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Carpentry project implementation from start to finish Students are tested practically on .woodwork	Implementation of ,cutting ,installation ,leveling and finishing works The teacher implements in front of the students .step by step Students work together in groups on a carpentry .project	carpentry Basic principles of .1 ,model carpentry definition of wood types and their uses, types of models, their carpentry and their uses in plumbing . ,Model correction .2 conditions required for ,model correction ,shrinkage coefficient exercise on executive drawing of simple models with one boundary and .without a box .3 Equipment used, hand tools and mechanical :equipment used ,thicknessing machine ,Chinese saw, band saw ,screeding machine	The student should be able to distinguish between types of wood and .their uses that Used The student saw Manual in He told wood accurately that Applies The student rules Safety when employment machine saw that It is done The student	3	the first
				3	the second
				3	the third

		,sanding machine converter. Practical training for .4 assembling parts according to the working .drawing on the markings	Project wooden simple according to The plan Required		
Organizing a team effort to produce a cast piece Assign students a small practical .project Conduct practical tests to .assess their skills	Providing a simplified explanation of the types and steps of .plumbing Conduct a live demonstratio n in front of students Involving students in practical application of molds and casting Use educational videos that explain the stages of .plumbing	**metal casting** Metal casting and its ,importance The purpose of using ,castings in industry Contents of the plumbing unit Industrial safety ,precautions in casting Form a sand mold for a one-piece model in front ,of the students Types and sources of mold sand, additive properties, mixing processes, and quantity control, using a sand mixer, sand processing. Forming sand molds manually into a one-piece model to form a sand mold.	The student lists the different types of .plumbing that Execute The student template sandy basic that Pour The student metal The molten Safely inside Template that Ends The student The piece Cast Finishing good	3 3 3 3 3 3	Fourth Ninth -
It allows students to practice working on metal parts ,themselves using instructional videos that demonstrate filing procedures. It encourages teamwork to complete exercises, and finally, it	A simplified explanation is used to explain the types of files and ,filing tools and the technician performs a practical demonstratio n to demonstrate the correct method of .work	**The refrigerator And maintenance** Evolution industrial .1 And the role The .refrigerator From him 2 The foot same vernier Its types Ways Measurement With it How to a job Warnia You read gauge , Heights same The depths The Farajil. Process Shankrah .3 surfaces basis number used , Materials Show fork shock , The falcons , Justice , Farjal Shankrah Guilt And the guilt The	The student should know the types of files and the use of each .type that cool The student surface piece mineral to measurement specific that Unlock The student Part	3 3 3 3 3 3	- 10th 15th

conducts practical tests to 'assess students skill and .accuracy		corner List , Flowers Shankrah , Shankar , ordinary And sensitive gauge Heights , protractor the university And measurement angles , an exercise practical collects Operations Shankrah . .4 Files And the process cold Types Files And its specifications The one who is able And its types and methods link Handicrafts Herwork	Mechanically Don Destroy it that discover The student holidays Mechanically simple And determines		
Students work together in groups to make welded .connections Implementing a small project that includes welding work Students are tested practically on the implementation and inspection .of welded joints	Explanation of welding ,types ,equipment ,work steps and safety .rules The teacher performs the welding process in front of the students .step by step Watch videos or demonstratio ns that demonstrate different welding .techniques	**Welding** Occupational Safety and Security Precautions: Gas welding, equipment used and how to install and adjust it, other auxiliary equipment and gases used ,and their specifications welding wires, their types and measurements, other ,auxiliary materials welding equipment, types of flames and the method of igniting and adjusting ,the required flame workpieces, rinsing and cleaning the edges to be welded	The student should list the different types of welding and .their uses The student will operate the electric welding machine .safely The student must make a straight weld of good .quality The student should examine the weld joint and ensure that it is free of any visible .defects	3 3 3 3 3 3	sixteent - h twenty-one
Students ,practice cutting shaping and	Explanation of tanning tools, types ,of plates	**Bodywork Blacksmithing** equipment to cut pallet , Bend , machine rolling	that Counts The student tools Bodywork	3	twenty-twelfth -

assembling .sheet metal Students work together to produce a specific piece of .metal Practical testing of students on the accurate execution of bodywork .operations	and work steps The teacher performs the steps of ,cutting ,bending and shaping the sheets in front of the .students Demonstrate s different tanning processes and shaping .methods	machine Grooves The number Handmade , use and bending pallet Manually , The secret Normal , List And the , method The drawing , Exclusives simple account Exclusive Triggers The piece And the incomplete	And use all From it that It forms The student plate mineral according to Measurement s specific that Heating The student piece iron And it forms it with a hammer that Applies The student rules Safety in workshop blacksmithing And the bodywork	3 3	twenty-fourth
Allow students to operate the machine themselves repeatedly to gain manual dexterity and .confidence Breaking the process down into simple steps assemble the) workpiece – set the speed – start – cutting .(measure Use models or simulation software before working on real .machines Start training with simple operations and then move on to	clarification principles lathe, Types ,machines ,tools pieces rules Safety Rising teacher By implementin g Operations turning before students step In a step ,photo ,Videos ,Models Offers Introductory Explain parts The machine And its tools .	**lathe** lathe And its specifications and its uses and its accessories and , methods Its composition employment lathe , Types pens lathe Using all From it.	Knowing the types of lathes Learn about lathe tools Adjusting and operating the machine safely Perform basic lathe operations	3 3 3 3 3 3	twenty-fifth - thirty

complex operations to increase .efficiency					

11) Curriculum Development Plan

1. **Reviewing existing content and adding the latest technologies and machinery used in the industry, as well as including new topics such asCNC 3D printing, and smart , .manufacturing**
2. **Diversifying teaching methods : Using modern educational tools such as video, digital simulations, and interactive presentations, and focusing on applied learning and practical .skills**
3. **Developing the work environment : Updating workshop equipment and machinery to keep pace with labor market requirements, and providing accurate and modern .measuring tools and devices**

12) infrastructure

Available	Classrooms, laboratories and workshops
Available	1- Required textbooks

Machine parts technology

Course name (1
Machine parts technology
Course code (2
METP211
Available attendance forms (3
.Weekly lesson schedule (theoretical) Discussions, scientific seminars, and other extracurricular activities
semester/year (4
First and second
Number of study hours (total) / Number of units (5
units3 / hours 96
Date this description was prepared (6
2025/6/12
Course supervisor name (7
M.M. Sara Burhan Ezzat :Name sarah_burhan@ntu.edu.iq :Email
Course objectives (general objectives of the course) (8
.Introduce the student to the basic concepts of designing mechanical machine parts .1 **Providing the student with analysis and design skills for fastening elements such as nails, welding, screws, and .2 .axles** **.Enabling the student to select appropriate mechanical parts for industrial applications .3** **.Preparing the student to deal with design and safety standards in the machinery industry .4** **.Developing the student's skills in using software to assist in designing mechanical parts .5**

Course outcomes , teaching, learning and assessment methods (9

Evaluation methods	Teaching and learning methods	Outputs
Written exams short and) .(final Short tests .during lectures Oral questions to measure immediate .understanding Homework to encourage self- .reflection	Theoretical lectures to explain scientific concepts and .foundations Class discussions to enhance understanding and exchange of .ideas	أ- knowledge 1. Learn the principles of designing machine . parts 2. Understanding the properties of materials . used in manufacturing parts 3. Analysis of loads and stresses affecting . mechanical parts 4. Study the types of connections and their . design methods 5. Knowledge of the design of transmission . systems such as gears, belts and clutches

Evaluating 'students participation in class .discussions Preparing short scientific research or .reports	to Presentations explain the .design steps Solve practical problems and examples during .the lesson Use multimedia ,videos, images) presentations) to .illustrate ideas Reading books and scientific .references Assign students short research papers on .specific topics	Selecting appropriate bearings according to .6 . operating conditions Use basic equations in designing machine .7 . elements Review of modern software in mechanical .8 . design Considering safety and quality standards in . design
Written exams short and) .(final Short tests .during lectures Oral questions to measure immediate .understanding Homework to encourage self- .reflection Evaluating 'students participation in class .discussions Preparing short scientific research or .reports	Conduct practical exercises in design and engineering .drawing Training on the use of engineering software Solve problems and apply designs in the classroom or .laboratory the job Within groups to implement small .projects Practical demonstrations	B - Skills Practical application of machine parts design .1 . steps Solve design problems related to machine .2 . connections and parts Drawing engineering diagrams of machine .3 . parts AutoCAD, such as(Use engineering software .4 . in designing mechanical elementsSolidWorks) Selecting suitable mechanical parts for .5 . different applications Preparing technical reports related to the .6 . design and inspection of machine parts Implement engineering calculations .7 . accurately and efficiently Analyze machine parts failure cases and .8 . suggest solutions

	of design or .inspection steps Field visits or watching practical videos of engineering .industries	
Written exams short and) .(final Short tests .during lectures Oral questions to measure immediate .understanding Homework to encourage self- .reflection Evaluating 'students participation in class .discussions Preparing short scientific research or .reports	Class discussions on engineering .ethics Teamwork to develop a spirit of cooperation and .responsibility to Case studies establish the values of accuracy and .quality Encourage students to give presentations and share opinions with .confidence Motivate students to adhere to safety standards in design and .implementation Present hypothetical situations to stimulate value-based thinking and sound .decision-making	C- Values Commitment to accuracy and responsibility .1 . in implementing design work Enhancing teamwork and cooperation in .2 . solving engineering problems Respecting engineering ethics in the design .3 . and manufacture of mechanical parts Attention to safety and quality standards in .4 . engineering work Developing the spirit of innovation and taking .5 . responsibility in making design decisions Appreciating the importance of continuous .6 learning and keeping up with technical . developments in the field of mechanics

Course structure (10					
(Theoretical Vocabulary)					
Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watch es	week
short exam	Theoretical lectures	Review of Strength of Materials	Explains the basics of material strength and factors affecting the design of machine .parts	3	1
Written test	Theoretical lectures and exercises	Riveted Joints. Types of Riveted Joints, Design of Riveted Joints, Efficiency of Riveted Joints	Distinguishes types of riveted ,connections calculates their efficiency and designs them according to engineering .standards	3	3-2
Written test	Theoretical lectures	Welded Joints Types of welding Joints, Design of welding Joints	Explains the types of ,welded joints and applies the steps for their design and durability .analysis	3	5-4
Reports and exercises	Lectures and exercises	Screwed Joints, Design of Bolts for Fastening, Design of Bolts for Power Transition	Explains types of screw ,connections and designs screws for force transmission and	3	7-6

			mechanical .fastening		
short exam	Lectures and exercises	Keyed Joints, Types of Key, Design of Sunk Key.	Identifies types of mechanical switches and designs plunge switch .connections	3	9-8
Written test	Lectures	Frictional Clutches, Type of Frictional Clutches, Design of Frictional Clutches.	Explains types of friction clutches and designs them according to power transmission .requirements	3	11-10
Written test	Lectures	Types of Springs, Design of Springs	Distinguish between types of springs and design springs to withstand different mechanical .loads	3	13-12
Written test	Lectures and exercises	Types of Belts, Design of Belts.	Explains ,types of belts and designs belt drive .systems	3	15-14
Written test	Lectures and exercises	Design of Shafts	Axles are designed to withstand ,forces twisting moments and .bending	3	16
Written test	Lectures	Design of Journal Bearings	Explains the design principles of bushings and sliding bearings and	3	18-17

			selects appropriate .dimensions		
Written test	Lectures	Selection of Ball Bearings	Explains the basics of material strength and factors affecting the design of machine .parts	3	20-19
Written test	Lectures	Design of Gears by Lewis Equation	Identify the factors affecting the selection of ball bearings and select the appropriate ones for the .application	3	22-21
Written test	Lectures	Gears Trains	Lewis equation is used to design gear teeth and analyze their ability to transmit .torque	3	24-23
Written test	Lectures	Design of Simple Gears Box	Explains types of gear sets and analyzes their transmission .ratios	3	26-25
Written test	Lectures	Worm Gears	A simple gearbox is designed based on the power transmission .requirements	3	28-27
Written test	Lectures	Cams	Explains the design of worm gears	3	30-29

			and their applications in power .transmission		

Curriculum Development Plan (11

Updating the course vocabulary to keep pace with recent developments in machine .component design

into theAutoCAD andSolidWorks Introducing modern engineering software such as .practical and applied aspects

.Adding real-life industrial examples to link theoretical study to practical application

.Develop teaching methods to include e-learning and interactive presentations

.Organizing field visits to factories and workshops to observe practical applications

Encourage students to implement small projects to design mechanical parts using .engineering software

Continuously updating scientific references to include the latest international books .and research in machine element design

infrastructure (12

Available	Classrooms, laboratories and workshops
Available	Required textbooks -1
Machine Design by RS Khurmi and JK Gupta Shigley's Mechanical Engineering Design by Richard G. Budynas, J. Keith Nisbett Design of Machine Elements by VB Bhandari	Main References (Sources) -2
Mechanical Engineering Magazine (ASME) International Journal of Machine Design and Production Machine Design Journal	Recommended books and references (أ (.scientific journals, reports, etc)
www.engineersedge.com www.machinedesign.com www.asme.org www.sciencedirect.com	.....,Electronic references, websites (ب

Computer Applications 1 Course Description

Course name –1
Computer 1
Course code –2
NTU102
Available attendance forms –3
My presence
/ Chapter/Year –4
Second semester / 2024/2025
Number of study hours (total) / Number of units -5
units 3 / 45=15*3
Date this description was prepared -6
12/6/2025
Course supervisor name -7
the name : M.M. Sara Burhan Ezzat sarah_burhan@ntu.edu.iq :Email
Course objectives (general objectives of the course) –8 **This course aims to introduce students to the basic concepts of information technology ,and computer use. This course includes a study of computer hardware componentssuch as the processor, memory, and input/output units. It also covers software, including as well as the concept of computer viruses , operating systems and various applications .and how to deal with them** **Top scorer of the University Computer Science 1 course** • Provide students with a comprehensive understanding of computer components and their functions . • Develop students' skills in using operating systems and basic software . • Knowledge of computer generations • Knowledge of using software • Learn how to format floppy disks • Educating students about the importance of information security and data protection methods . • Knowing the concept of computer viruses and how to deal with them • Know how to access the Internet • Learn about computer components • Learn about the evolution of computers throughout history • Dealing with operating systems • Gaining the skill of using the Windows operating system • Learn about software types • Identify and use storage unit types • Perform basic computer maintenance • Understanding networking basics • Application of information security principles • Gain the skill to get rid of viruses that may infect the computer

- Use of office software
- Searching the Internet and Using Email
- Enable students to understand the basics of networking and use the Internet effectively.

9- Course outcomes , teaching, learning and assessment methods

Course outcomes

It is a set of knowledge, skills and values that the course seeks to achieve in students : identification .

It provides the learner with a clear idea of what he will be able to do after completing: Its importance . the course, and helps in designing and evaluating academic courses

The course outcomes are determined based on the objectives of the academic ? How is it determined . program to which the course belongs

Outputs	Teaching and learning methods	Evaluation methods
: outputsKnowledge By the end of this course, the student is :expected to be able to 1. Identify the hardware and software components of the computer. 2. Explain the difference between operating systems and application programs. 3. Describe the basics of the Internet and networks. 4. Understanding the basic concepts of information security. 5. Distinguish between types of software and their uses in the work environment.	1. Lecture using PowerPoint 2. Discussion with students 3. Display exercise solutions for each topic. 4. Assigning students to practical cases 5. Student costs for preparing reports on course topics	1- Oral and written questions and discussions 2- Presentation of the lecture 3- Data Show Using solve Show explanations And mathematical problems 4- Practical application, cooperative learning, brainstorming

: outputsSkills Running and using .1 popular operating systems such as .Windows Microsoft Office ,applications (Word .(Excel, PowerPoint Send and receive .3 email and manage .attachments Browse the Internet .4 effectively using search .engines ,Perform file saving .5 retrieval, and organization operations .on the computer	Practical (applied) training .1 Project-based learning .2 Cooperative learning .3 .Simulation and software .4 Self-education using the Internet .5 Targeted training .6 Practical duties .7	Practical application .1 Projects .2 Direct observation .3 Homework and practical .4 activities Self-assessment .5 Presentations .6
and Third: Values :Attitudes Demonstrate .1 commitment to computer and .information ethics Respecting the .2 intellectual property rights of software and .digital content Work as a team .3 when carrying out joint .tasks and projects Demonstrate interest .4 in developing personal .technical skills Adhere to safety and .5 cybersecurity procedures when using .the computer	Class discussions .1 Case studies .2 Values-based learning .3 Group activities .4 Behavioral role model of the .5 teacher	Direct observation .1 Class discussions and .2 participation Achievement book .3 Questionnaires and self- .4 assessment

(Theoretical and practical vocabulary) Course structure -10

Subheadings	Theoretical time And my work	Chapter title	Teaching method	Technologies used	Methods of measurement and evaluation	week
History of computer development	hour1 theoretical	Introduction to the computer	Theoretical and	Presenting the lecture using the	Assignments and duties -1 Quiz -2	the first

from the first generation to the current generation Introduction to computer types ,desktop, laptop) .(tablet, server Introduction to the computer and its history of development	2 hours of work	and its history of development	practical	,data show presenting ,explanations solving and mathematical problems using Microsoft ,Board practical ,application collaborative learning, and brainstormin .g	Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	
The main physical components of a computer are the CPU) processor) memory ,(storage ,(RAM HDD,) units and input ,(SSD .and output units Explain the function of each component and .how it works	1 1 hour theoretical 2 hours of work	Computer hardware components	Theoretical and practical	Presenting the lecture using the ,data show presenting ,explanations solving and mathematical problems using Microsoft ,Board practical ,application collaborative learning, and brainstormin .g	Assignments and -1 duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	the second
Software :definition Operating systems (such as (Windows, Linux and application .programs Functions and types of operating .systems Familiarize yourself with different user .interfaces	hour1 theoretical 2 hours of work	Software- and operating systems	Theoretical and practical	Presenting the lecture using the ,data show presenting ,explanations solving and mathematical problems using Microsoft ,Board practical ,application collaborative learning, and brainstormin .g	Assignments and -1 duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	the third

Windows system concept Its advantages and basic requirements How to create and manage files and folders Organize files effectively and .use file systems Data Backup and Restore	hour1 theoretical 2 hours of work	Operating system Windows 11	Theoretical and practical	Presenting the lecture using the ,data show presenting ,explanations solving and mathematical problems using Microsoft ,Board practical ,application collaborative learning, and brainstormin .g	Assignments and duties -1 Quiz -2 Practical test -3 Monthly test -4 Final written exam -5 Cooperative learning -6	Fourth	
conceptIcon How to deal with mouse activities The importance and components of the taskbar	hour1 theoretical 2 hours of work	Desktop Home Screen Components	Theoretical and practical	Presenting the lecture using the ,data show presenting ,explanations solving and mathematical problems using Microsoft ,Board practical ,application collaborative learning, and brainstormin .g	Assignments and duties -1 Quiz -2 Practical test -3 Monthly test -4 Final written exam -5 Cooperative learning -6	Fifth	
toStart Use access programs The concept of assigned tasks Exit the system shut down and the calculator	hour1 theoretical 2 hours of work	Start menu	Theoretical and practical	Presenting the lecture using the ,data show presenting ,explanations solving and mathematical problems using Microsoft ,Board practical ,application collaborative learning, and brainstormin .g	Assignments and duties -1 Quiz -2 Practical test -3 Monthly test -4 Final written exam -5 Cooperative learning -6	Sixth	

Getting to know My Computer tablets Formatting floppy disks Dealing with the trash Recover deleted items	hour1 theoretical 2 hours of work	My Computer	Theoretical and practical	Presenting the lecture using the ,data show presenting ,explanations solving and mathematical problems using Microsoft ,Board practical ,application collaborative learning, and brainstormin .g	Assignments and duties -1 Quiz -2 Practical test -3 Monthly test -4 Final written exam -5 Cooperative learning -6	Seventh	
Taking advantage of control panel programs Control Panel Icons Settings in the control panel Desktop background appearance Add and remove programs	hour1 theoretical 2 hours of work	Control Panel	Theoretical and practical	Presenting the lecture using the , data show presenting ,explanations solving and mathematical problems using Microsoft ,Board practical ,application collaborative learning, and brainstormin .g	Assignments and duties -1 Quiz -2 Practical test -3 Monthly test -4 Final written exam -5 Cooperative learning -6	The eighth	
Benefit from additional) programs (Accessories Like calculator and calendar	hour1 theoretical 2 hours of work	) Programs Accessorie (s	Theoretical and practical	Presenting the lecture using the ,data show presenting ,explanations solving and mathematical problems using Microsoft ,Board practical ,application .and learning	Assignments and duties -1 Quiz -2 Practical test -3 Monthly test -4 Final written exam -5 Cooperative learning -6	Ninth	
Image media Video media	hour1 theoretical	Use of media programs	Theoretical and	Presenting the lecture using the	Assignments and duties -1 Quiz -2		

Window Media player	2 hours of work		practical	,data show presenting ,explanations solving and mathematical problems using Microsoft ,Board practical ,application collaborative learning, and brainstormin .g	Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	tenth	
Learn how to get itsand help different .methods	hour1 theoretical 2 hours of work	Help	Theoretical and practical	Presenting the lecture using data ,show presenting ,explanations and solving mathematical problems using Microsoft ,Board practical ,application collaborative learning, and brainstormin .g	Assignments and -1 duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	eleventh	
Basic principles of information security Types of cyber ,threats (viruses malware, data protection ,strategies ,passwords (encryption	hour1 theoretical 2 hours of work	Information security	Theoretical and practical	Presenting the lecture using data ,show presenting ,explanations and solving mathematical problems using Microsoft ,Board practical ,application collaborative learning, and brainstormin .g	Assignments and -1 duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	Twelve	

Introduction to Computer Networks Types of networks LAN, WAN How to connect ,to the Internet Internet protocols	hour1 theoretical 2 hours of work	Networks and the Internet	Theoretical and practical	Presenting the lecture using data ,show presenting ,explanations and solving mathematical problems using Microsoft ,Board practical ,application collaborative learning, and brainstormin .g	Assignments and duties -1 Quiz -2 Practical test -3 Monthly test -4 Final written exam -5 Cooperative learning -6	thirteenth
Use search engines effectively Evaluating the credibility of online sources Introduction to cloud tools and services like Google Drive	hour1 theoretical 2 hours of work	Online Search and Web Tools	Theoretical and practical	Presenting the lecture using data ,show presenting ,explanations and solving mathematical problems using Microsoft ,Board practical ,application collaborative learning, and brainstormin .g	Assignments and duties -1 Quiz -2 Practical test -3 Monthly test -4 Final written exam -5 Cooperative learning -6	Fourteenth
Learn about artificial intelligence platforms Create and manage email Send and receive emails	hour1 theoretical 2 hours of work	Online Search and Web Tools	Theoretical and practical	Presenting the lecture using data ,show presenting ,explanations and solving mathematical problems using Microsoft ,Board practical ,application collaborative	Assignments and duties -1 Quiz -2 Practical test -3 Monthly test -4 Final written exam -5 Cooperative learning -6	The fifteenth

				learning, and brainstormin .g		

Curriculum Development Plan
Continuously updating the curriculum to keep pace with developments in the labor market :(Curriculum Update Committee, Scientific Committee) such as Develop curricula that are compatible with the labor market -1 Holding scientific seminars and conferences aimed at updating curricula -2 Follow up on scientific developments in the field of specialization -3

Infrastructure-11	
Available	,Classrooms playgrounds and workshops
Available	Requir -1 ed textbooks
The book “Computer Basics and Office Applications” by Dr. Ziad -1 :Muhammad Abboud, Dr. Ghassan Hamid Abdul Majeed and others This book covers the basics of computer science, according to the curriculum of the Ministry of Higher Education and Scientific Research / Research and Development Department, and is a reference for first-year students in all Iraqi .universities :The book "Computer Principles" by Dr. Osama Youssef Khalil .2 This book covers the basics of computer hardware, software, and operating .systems, and is a good reference for beginners :The book "Introduction to Computers" by Dr. Muhammad Al-Saeed .3 ,This book provides a detailed explanation of the computer and its components .types of software, and networks .The book "Principles of Computer and Information Technology" by Dr .4 :Hossam El-Din Mustafa ,It contains a simplified explanation of the various components of the computer .along with an explanation of the programs and applications used in it :The book "Computer Basics and Applications" by Dr. Abdullah Hassan .5 This book covers a variety of topics including computer components, operating .systems, word processing, and spreadsheets .The book “Introduction to Computers and Their Applications” by Dr .6 :Abdul Rahman Al-Shaiji The book covers the basic principles of computers in terms of hardware and .software, and includes practical applications The book “Computer Principles: A Comprehensive Guide” by a group of .7 :authors A comprehensive book that explains in detail everything related to computer .components, software, and networks, with illustrative examples	Main -2 References (Sources)
: website" .1 o ,Provides comprehensive articles and lessons on computer basics . programming, and operating systems " website: Learn" .2	Recom (أ mended books and references scientific)

,journals (.reports, etc	,It contains free educational courses in various computer fields ○ . including computer basics " website: Rawaq" .3 It offers free courses in Arabic that include topics on computer ○ . principles and information technology " website: Noor Library" .4 It contains many Arabic books in the field of computers, including ○ . books on basic principles : My Educational Lessons YouTube Channel .5 Provides a visual explanation of computer principles and ○ . programming concepts in Arabic
Electro (ب ,nic references .....,websites	w3schools.com .1 .HTML, CSS, JavaScript To learn programming languages such as geeksforgeeks.org .2 .Detailed explanation of programming concepts and algorithms tutorialspoint.com .3 .Lessons in computer science, networks, cybersecurity, and operating systems mozilla.org .4 .(HTML, CSS, JavaScript) A comprehensive reference for web developers

Course Description Computer Applications 2

Course name –11
Computer Applications 2
Course code –12
NTU103
Available attendance forms –13
My presence
/ Chapter/Year –14
Second semester / 2024/2025
Number of study hours (total) / Number of units -15
units 3 / 45=15*3
Date this description was prepared -16
2025/6/20
Course supervisor name -17
the name : Asst. Prof. Dr. Iyad Abdul Ramadan ayadramdan_hwj@ntu.edu.iq :Email
Course objectives (general objectives of the course) –18 This course aims to introduce students to the basic concepts of information technology and computer use. This course includes studying computer hardware componentssuch as the processor, memory, and input/output units, as well as software, including operating systems and . as well as the concept of computer viruses and how to deal with them , various applications

Top scorer of the University Computer Science 2 course:

- . Provide students with a comprehensive understanding of computer components and their functions
- . Develop students' skills in using operating systems and basic software
- Knowledge of computer generations
- Knowledge of using software
- Learn how to format floppy disks
- Educating students about the importance of information security and data protection methods .
- Knowing the concept of computer viruses and how to deal with them
- Know how to access the Internet
- Learn about computer components
- Learn about the evolution of computers throughout history
- Dealing with operating systems
- Gaining the skill of using the Windows operating system
- Learn about software types
- Identify and use storage unit types
- Perform basic computer maintenance
- Understanding networking basics
- Application of information security principles
- Gain the skill to get rid of viruses that may infect the computer
- Use of office software
- Searching the Internet and Using Email

Enable students to understand the basics of networking and use the Internet .effectively

19- Course outcomes , teaching, learning and assessment methods

Course outcomes

. It is a set of knowledge, skills and values that the course seeks to achieve in students : identification

,It provides the learner with a clear idea of what he will be able to do after completing the course: Its importance . and helps in designing and evaluating academic courses

The course outcomes are determined based on the objectives of the academic program ? How is it determined . to which the course belongs

Outputs	Teaching and learning methods	Evaluation methods
: outputsKnowledge By the end of this course, the student is expected to be able :to 1. Identify the hardware and software components of the .computer 2. Explain the difference between operating systems and .application programs	.6 Lecture using PowerPoint .7 Discussion with students .8 Display exercise solutions for .each topic	-1 Oral and written questions and discussions -2 Display the lecture using The data show -3 Presenting explanations and solving mathematical .problems -4 Practical application, cooperative learning, brainstorming

	9. Assigning students to practical cases 10. Student costs for preparing reports on course topics	3. Describe the basics of the Internet and networks. 4. Understanding the basic concepts of information security. 5. Distinguish between types of software and their uses in the work environment.
1. Practical application 2. Projects 3. Direct observation 4. Homework and practical activities 5. Self-assessment 6. Presentations	1. Practical (applied) training 2. Project-based learning 3. Cooperative learning 4. Simulation and software. 5. Self-education using the Internet 6. Targeted training 7. Practical duties	Skills outputs: 1. Running and using popular operating systems such as Windows. 3. Send and receive email and manage attachments. 4. Browse the Internet effectively using search engines. 5. Perform file saving, retrieval, and organization operations on the computer.
1. Direct observation 2. Class discussions and participation 3. Achievement book 4. Questionnaires and self-assessment	1. Class discussions 2. Case studies 3. Values-based learning 4. Group activities 5. Behavioral role model of the teacher	Third: Values and Attitudes: 1. Demonstrate commitment to computer and information ethics. 2. Respecting the intellectual property rights of software and digital content. 3. Work as a team when carrying out joint tasks and projects. 4. Demonstrate interest in developing personal technical skills. 5. Adhere to safety and cybersecurity procedures when using the computer.

20- Course structure (Theoretical and practical vocabulary)

Subheadings	Theoretical time And my work	Chapter title	Teaching method	Technologies used	Methods of measurement and evaluation	week
Learn - about Office programs	hour1 theoretical hours of 2 work	Introduction to Microsoft Office	Theoretical and	Presenting the lecture using the ,data show presenting	Assignments -1 and duties Quiz -2 Practical test -3	the first

The importance ,of Word Excel, and PowerPoint in the work environment			practic al	explanations, and solving mathematical problems using ,Microsoft Board practical ,application collaborative learning, and .brainstorming	Monthly test -4 Final written -5 exam Cooperative -6 learning	
Main - interface Create a - new document Save and - open) documents ,(HDD, SSD drives	hour1 1 theoretical hours of 2 work	Getting started with Microso ft Word	Theore tical and practic al	Presenting the lecture using the ,data show presenting explanations, and solving mathematical problems using ,Microsoft Board practical ,application collaborative learning, and .brainstorming	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	the second
Font - formatting Paragraphs Distances - and separation Icons and - lists	hour1 theoretical hours of 2 work	Formatti ng text Word in	Theore tical and practic al	Presenting the lecture using the ,data show presenting explanations, and solving mathematical problems using ,Microsoft Board practical ,application collaborative learning, and .brainstorming	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	the third
Insert tables Insert and - edit images Working - with illustrations	hour1 theoretical hours of 2 work	Working with tables and images Word in	Theore tical and practic al	Presenting the lecture using the ,data show presenting explanations, and solving mathematical problems using ,Microsoft Board practical ,application collaborative	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	Fourth

				learning, and .brainstorming		
Insert - hyperlinks Add - equation Use of - symbols	hour1 theoretical hours of 2 work	Insert other elements Word in	Theoretical and practical	Presenting the lecture using the ,data show presenting explanations, and solving mathematical problems using ,Microsoft Board practical ,application collaborative learning, and .brainstorming	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	Fifth
Preview - before printing Review - spelling and grammatical .errors Prepare the - page for printing	hour1 theoretical hours of 2 work	Print and final review Word in	Theoretical and practical	Presenting the lecture using the ,data show presenting explanations, and solving mathematical problems using ,Microsoft Board practical ,application collaborative learning, and .brainstorming	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	Sixth
Create a - table of contents Add - indexes Use of - patterns and templates	hour1 theoretical hours of 2 work	Working with documents in Word	Theoretical and practical	Presenting the lecture using the ,data show presenting explanations, and solving mathematical problems using ,Microsoft Board practical ,application collaborative learning, and .brainstorming	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	Seventh
Final - project Word Using Submitting - the project work	hour1 theoretical hours of 2 work	Working on projects Word in	Theoretical and practical	Presenting the lecture using the ,data show presenting explanations, and solving mathematical problems using ,Microsoft Board practical	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	The eighth

				,application collaborative learning, and .brainstorming		
Main - interface Create - spreadsheets Data types - (texts)	hour1 theoretical hours of 2 work	Getting Started with Microsoft Excel	Theoretical and practical	Presenting the lecture using the ,data show presenting explanations, and solving mathematical problems using ,Microsoft Board practical ,application collaborative learning, and .brainstorming	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	Ninth
Basic - formulas Equations - Mathematical and financial functions	hour1 theoretical hours of 2 work	Function Excel in	Theoretical and practical	Presenting the lecture using the ,data show presenting explanations, and solving mathematical problems using ,Microsoft Board practical ,application collaborative learning, and .brainstorming	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	tenth
Formatting - cells and tables Create - charts Customize - charts	hour1 theoretical hours of 2 work	Formatting tables and creating charts	Theoretical and practical	Presenting the lecture using data show, presenting explanations, and solving mathematical problems using ,Microsoft Board practical ,application collaborative learning, and .brainstorming	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	eleventh
Prepare the - page for printing Report - coordination	hour1 theoretical hours of 2 work	Printing Excel in	Theoretical and practical	Presenting the lecture using data show, presenting explanations, and solving	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4	Twelfth

Use - multiple worksheets				mathematical problems using ,Microsoft Board practical ,application collaborative learning, and .brainstorming	Final written -5 exam Cooperative -6 learning	
Main - interface Create a- new presentation Save and - open presentations	hour1 theoretical hours of 2 work	Getting Started with Microsoft PowerPoint	Theoretical and practical	Presenting the lecture using data show, presenting explanations, and solving mathematical problems using ,Microsoft Board practical ,application collaborative learning, and .brainstorming	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	thirteenth
Text - formatting Insert - images and tables Add - shapes and illustrations	hour1 theoretical hours of 2 work	Design slides and content in PowerPoint	Theoretical and practical	Presenting the lecture using data show, presenting explanations, and solving mathematical problems using ,Microsoft Board practical ,application collaborative learning, and .brainstorming	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	Fourteenth
Add - transitions and motion .effects Practice - giving professional presentations	hour1 theoretical hours of 2 work	Professional effects and presentation	Theoretical and practical	Presenting the lecture using data show, presenting explanations, and solving mathematical problems using ,Microsoft Board practical ,application collaborative learning, and .brainstorming	Assignments -1 and duties Quiz -2 Practical test -3 Monthly test -4 Final written -5 exam Cooperative -6 learning	The fifteenth

Curriculum Development Plan

Continuously updating the curriculum to keep pace with developments in the labor market :(Curriculum Update Committee, Scientific Committee) such as Develop curricula that are compatible with the labor market -4 Holding scientific seminars and conferences aimed at updating curricula -5 Follow up on scientific developments in the field of specialization -6	
	Infrastructure-11
Available	ssrooms, playgrounds and workshops
Available	Required textbooks -3
.The book “Computer Basics and Office Applications” by Dr -1 Ziad Muhammad Abboud, Dr. Ghassan Hamid Abdul Majeed and others: This book covers the basics of computer science, according to the curriculum of the Ministry of Higher Education and Scientific Research / Research and Development Department, and is a reference for first-year students in all Iraqi universities. The book "Computer Principles" by Dr. Osama Youssef .2 Khalil: This book covers the basics of computer hardware, software, and operating systems, and is a good reference for beginners. The book "Introduction to Computers" by Dr. Muhammad .3 Al-Saeed: This book provides a detailed explanation of the computer and its components, types of software, and networks. The book "Principles of Computer and Information .4 Technology" by Dr. Hossam El-Din Mustafa: It contains a simplified explanation of the various components of the computer, along with an explanation of the programs and applications used in it. .The book "Computer Basics and Applications" by Dr .5 Abdullah Hassan: This book covers a variety of topics including computer components, operating systems, word processing, and spreadsheets. The book “Introduction to Computers and Their .6 Applications” by Dr. Abdul Rahman Al-Shaiji: The book covers the basic principles of computers in terms of hardware and software, and includes practical applications. ”The book “Computer Principles: A Comprehensive Guide .7 by a group of authors: A comprehensive book that explains in detail everything related to computer components, software, and networks, with illustrative examples.	Main References -4 (Sources)
.6 website" : ○ Provides comprehensive articles and lessons on computer basics, programming, and operating systems . .7 website: Learn""	**Recommended (ت books and references ,scientific journals) (.reports, etc**

It contains free educational courses in various computer fields, including computer basics. ○ 8. website: Rawaq" " It offers free courses in Arabic that include topics on computer principles and information technology. ○ 9. website: Noor Library" " It contains many Arabic books in the field of computers, including books on basic principles. ○ 10. My Educational Lessons YouTube Channel : Provides a visual explanation of computer principles and programming concepts in Arabic. ○	
1. w3schools.com To learn programming languages such as HTML, CSS, JavaScript. 2. geeksforgeeks.org Detailed explanation of programming concepts and algorithms. 3. tutorialspoint.com Lessons in computer science, networks, cybersecurity, and operating systems. 4. mozilla.org A comprehensive reference for web developers (HTML, CSS, JavaScript).	**ث) Electronic references, websites,.....**

Sports course description

(1 Course name
sports
(2 Course code
NTU 104
(3 Available attendance forms
My presence
(4 / Chapter/Year
First semester / 2024/2025
(5 Number of units / Number of study hours (total)
units 2 / 30=15*2
(6 Date this description was prepared
2025/6/18

Course supervisor name (7

:the name

:e-mail

Course objectives (general objectives of the course) (8

The goal of sports courses is to develop the individual physically, psychologically, and socially . through sports activities. Here are the most important general objectives of the sports course

University Sports Course Top Scorer:

.1Developing physical fitness and general health:

Enhancing students' physical fitness levels in line with the requirements of university life and daily activities.

,Contribute to the prevention of chronic diseases associated with lack of movement (such as obesity (heart disease, diabetes.

Developing motor and .2athletic skills:

,Providing students with basic and advanced skills in selected sports activities (such as: football (basketball, volleyball, swimming, or fitness exercises.

Developing neuromuscular coordination and various motor abilities.

Promoting positive values and .3behaviors :

Instilling the concepts of sportsmanship, commitment, discipline, and cooperation.

Building positive healthy behaviors that contribute to improving the quality of life.

.4Raising awareness of the importance of physical activity:

Enabling the student to understand the relationship between physical activity and mental and physical health.

Encouraging students to adopt an active and sustainable lifestyle after university.

Developing psychological and social .5aspects :

Strengthening self-confidence, controlling emotions, and accepting loss.

Enhancing communication and teamwork skills in an educational sports environment.

Supporting the academic and applied aspects in related disciplines (for specialized students .6) :

Enabling students to understand sports rules, laws and training principles.

Preparing students for career paths in athletic training, public health, or physical education

Course outcomes , teaching, learning and assessment methods (9

Course outcomes

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

Outputs	Teaching and learning methods	Evaluation methods
: outputsKnowledge Identify the benefits -1 of physical activity for .general health Knowing the rules -2 and methods of different .sports Understanding the -3 concepts of physical fitness, nutrition, and safety during physical .performance	Theoretical explanation and -1 .classroom discussions Use of multimedia and -2 .presentations Linking mathematical concepts to -3 .life applications	Theoretical tests (multiple -1 .(choice, true or false, essay .Oral questions -2 Teacher's comments on -3 understanding and class .participation
: outputsSkills Performing basic -1 motor skills (such as ,running, jumping .(throwing Properly -2 implementing skills related to group and .individual sports Use sports equipment -3 and tools in a correct and .safe manner	.Learning by doing -1 .Individual and group training -2 Learning based on educational -3 .stations .Practical simulation of games -4	Direct observation during -1 .performance Practical evaluation using -2 .the rubric Filming and reviewing the -3 .performance .Practical competitions -4
and Third: Values :Attitudes Enhancing the spirit -1 of cooperation and teamwork during sports .activities Commitment to the -2 rules of the game and .sportsmanship Respect colleagues -3 and teachers and behave .ethically in competitions	.Cooperative group activities -1 Discussions about the importance -2 .of values in sports .Educational situations during play -3 .A good example from the teacher -4	Classroom observation of -1 behavior and values during the .activity Self-evaluation and my -2 . colleagues' evaluation Reports or records of -3 And .student behavior in class .sustainable

Course structure **(Theoretical and practical vocabulary)**(10					
Chapter title	(Time theoreti / cal practica)1	Subheadings	Teaching method	Technologie s used	Methods measurem and evalua
Introduction to Physical Education	hour1 theoreti cal	Definition of physical its- education its- objectives importance	+ Lecture Discussio n	Presentation Smart– Board	- Written Oral participat
Health and Sports	hour1 theoreti cal	The importance of sports for general and mental health	Interactive + lecture discussion	PowerPoint Video-	Short- Sh Quiz
Components of physical fitness	hours2 theoreti cal	- Endurance- Strength - Flexibility- Speed Balance	Practical explanatio groups+ n	Sports Equipment Video-	Fitness- N Test
Warm-up and cool-down	hours 2 theoreti cal	The Importance of Practical– Warm-Up Applications	Practical + training supervisio n	- Video Timer	My wor performa evaluatic
Flexibility and balance	hours2 theoreti cal	- Flexibility exercises dynamic and static balance	Group + activity applicatio n	Simple - Tools Video	Practica calenda
Muscular and cardiac endurance	hours2	- Endurance Tests Progressive Exercises	Training stations	Running - Track Temporary	- Running Performa Monitori
Muscle strength	theoreti cal	- Resistance Training Strength Basics	targeted training	- Weights Resistance bands	Recordi Notes- Re
Speed and agility	hours2	Agility- Speed Tests Exercises	Individual group+ training	- Cones Timing	- Timing Notes
Team Games Rules	theoreti cal	- Basketball- Football Volleyball	Explanatio + n Discussio n	Blackboard Video-	Theoretical Participati
football skills	hours2	- Shooting- Passing Control	Field training	- Balls Network	Practica evaluatic
basketball skills	theoreti cal	- Shooting- Dribbling Passing	Training stations	- Balls Hoops	Individu Performa Note

volleyball skills	hours2	Smash- Pass- Send	+ Pair Group Training	Volleyball Net-	Sh
Practical matches	theoretical	- Skills Application Team Division	Supervised matches	- Whistle Refereeing Tools	e
sportsmanship and ethics	hours2	The concept of ethics- sportsmanship of play	Discussion and dialogue	Examples and scenarios	In
Final assessment	theoretical	Comprehensive Review Practical Tests-	Comprehensive testing and evaluation	Full tools	+ co pe e

.11 Curriculum Development Plan

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

.2 Develop curricula that are compatible with the labor market

.3 Holding scientific seminars and conferences aimed at updating curricula

.4 Follow up on scientific developments in the field of specialization

.12 infrastructure	
ssrooms, playgrounds and workshops	Available
Required textbooks -5	Available
Main References -6 (Sources)	Physical Education and Sports - Foundations and Concepts :Author Dr. Nabil Awadallah, Dr. Khalil Balasma :Edition Third Edition, 2018 :publisher Arab Thought House, Cairo
Recommended books (ج and references (scientific journals, reports, etc.)	Physical Education and Sports - Foundations and Concepts :Author Dr. Nabil Awadallah, Dr. Khalil Balasma :Edition Third Edition, 2018 :publisher Arab Thought House, Cairo
Electronic references (ج ,websites.....	https://sdl.edu.sa najor source of books, research and academic journals in Arabic and < ,English Available to Saudi university students via unified access

Human rights and democracy
Course name _1
Human rights and democracy
Course code _2
NTU 100
Available attendance forms _3
blended learning , Traditional attendance
semester/year _4
Level 1, First Semester 2025-2024
Number of study hours (total) / Number of units -5
hours / 2 units 30
Date this description was prepared -6
2025/6/11
Course supervisor name -7
the name: Asst. Prof. Dr. Ad Hamza Awad raadawad_hwj@ntu.edu.iq :Email
(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

-AObjectives cognitive

Learn the basic concepts related to human rights and democracy.

.Analysis of legal texts related to public rights and freedoms

for- 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

-CObjectives 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.11

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	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 the principles of human rights 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 history international recognition of human rights in the . League of Nations	The student should describe how philosophies and schools of thought . have dealt with rights	2	6
Monthly exams and a final exam	theoretical	Regional recognition of ,human rights European Convention on Human Rights American ,1950 . 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	theoretical	**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	theoretical	Types of democracy Direct democracy- Representative democracy	To identify the types of democracy- .and their examples To explain the difference between- .them	2	9

		Participatory - democracy			
Monthly exams and a final exam	theoretical	Basic principles of democracy rule Majority Rule of law- Respect for - rights and freedoms	The student should explain the basic-.principles of any democratic system .To link principles to human values-	2	10
Monthly exams and a final exam	theoretical	**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	theoretical	**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	theoretical	**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	theoretical	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 .12	
Classrooms	Available
Required textbooks -1	
Main references (sources) -2	
A- Recommended books and references (.Scientific journals, reports, etc)	Dr. Muhammad Nour Farhat ,The Human Rights Book Introduction to Human Rights , Dr. Mahmoud Sharif Bassiouni Democracy and Human Rights , Dr. Abdel-Ilah Belqaziz
B - Electronic references, Internet sites	

English course description

English course description
English language course at the institutes aims to provide students with basic English language skills that serve their academic specialization and help them in the job market.
Course name .1
English language

Course code	.2
NTU 101	
Available attendance forms	.3
Blended learning2. Traditional attendance (in person)	
semester/year	.4
Level 1, First Semester 2025-2024	
Number of study hours (total) / Number of units	.5
hours / 2 units 30	
Date this description was prepared	.6
2025/6/11	
Course supervisor name	.7
:the name	
:e-mail	

(Goals Course (Objectives) Public For the decision maker -8

. 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

for- Objectives Skills Private As scheduled .

To form grammatically and verbally correct sentences in everyday life situations.
To pronounce English words and terms correctly and clearly.
To write a paragraph or a short letter in correct language.

-CObjectives emotional and the value

The student must show a desire to learn English and use it in his daily life.
To be confident when speaking English in front of others.
To appreciate the importance of the English language in his academic and professional future.

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

-AObjectives 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.

B. Intention of the rapporteur .10

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 l/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 Adverbs of frequency	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
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.	2	7

			Use this/that to refer to objects near or .far		
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 - irregu lar 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 thatl 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 Present simple & present continuous	Use the present continuous tense to describe current actions. Distinguish between present simple and .present continuous in context	2	13
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

	infrastructure.11
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

Arabic language course description
Course name(1
mechanical techniques
Course code (2
NTU 104
Available attendance forms(3
Blended learning2. Traditional attendance
semester/year (4
Level 1, First Semester 2025-2024
/Number of study hours (total)(5
hours / 2 units 30
Date this description was prepared(6
2025/6/11
Course supervisor name (7
:the name
:e-mail
(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

.9Outputs The decision and methods education and learning and evaluation

. Objectives Skills Private As scheduled - for . Writes grammatically and spelling correctly . Writes professional letters and reports in correct language . He speaks Modern Standard Arabic in formal situations
Objectives emotional and the value -C . 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
-AObjectives 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

Course structure .10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
My formation and conclusion	theoretical	Introduction to linguistic errors - the closed and 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 short alif (i) in terms of . written usage	2	2

			It applies the rules for writing the letter Alif according to its position . and linguistic origin		
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 Dad and Tha 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 between them	Identify the types of punctuation marks and . their uses Use punctuation accurately in writing to improve clarity of . meaning	2	6
My formation and conclusion	theoretical	Effects	Distinguish between noun and verb in terms of meaning and structure . Classifies words in sentences according to	2	7

			their type: noun, verb, or .particle		
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 applications	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 Prepositions	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 linguistic errors - the closed and long taa and the open taa	Uses formal and direct language that is appropriate to the nature	2	13-14

			of administrative . discourse Avoid slang and grammatical errors when .writing formal letters		
My formation and conclusion	theoretical	Examples of administrative correspondence	Analyzes various forms of administrative ,correspondence (request . (.complaint, report, etc Writes administrative correspondence forms in a correct manner in terms .of form and content	2	15

Infrastructure -12	
Classrooms	Available
Required textbooks -1	1- الاملاء الواضح :عبد المجيد النعيمي ،دحام الكيال ،مكتبة دار المتنبي ، بغداد ط 6، 1987 م . 2- دروس في اللغة والنحو والاملاء لموظفي الدولة : اسماعيل حمود عطوان واخرون مطبعة وزارة التربية رقم (3) بغداد ،ط 2 ،1984م. 3- اللغة العربية للصف الثالث المتوسط :فاطمة ناظم العتابي ،واخرون ، ط1 ،2018 م. 4- اللغة العربية العامة لأقسام غير الاختصاص : عبد القادر حسن امين واخرون ،وزارة التعليم العالي والبحث العلمي ،ط2 ،2000م. 5- من وحي الادب العربي :هفال محمد امين ،مطبعة السعدون ،بغداد.
Main references (sources) -2	
A- Recommended books and references (.Scientific journals, reports, etc)	
B - Electronic references, Internet sites	

Course name (1
Material properties
Course code (2
METP 124
Available attendance forms (3
.Weekly lesson schedule (theoretical) Discussions, scientific seminars, and other extracurricular activities
semester/year (4
First and second
Number of study hours (total) / Number of units (5
hours / 2 units 30
Date this description was prepared (6
2025/6/12
Course supervisor name (7
M.M. Ziad Khalaf Hamad :Name zyad_hwj@ntu.edu.iq :Email
Course objectives (general objectives of the course) (8
Understanding engineering material properties is the language or phrases used by designers to ,define their requirements for a material that will withstand loads, fracture, disintegration Properties are also useful as a basis for comparing the. chemical reactions, radiation, and heat uniformity of different samples of a single material. It is noted that no two pieces of a single material have exactly the same properties. This is due to the many factors that the material is exposed to during manufacturing, as a result of forming processes, time, changes in temperature . or humidity, or other factors

Course outcomes, teaching, learning and assessment methods (9		
Outputs	Teaching and learning methods	Evaluation methods
أ- cognitive Understanding engineering material properties is the language or phrases used by designers to define their requirements for a material that will withstand loads, fracture, disintegration, chemical Properties are also. reactions, radiation, and heat useful as a basis for comparing the uniformity of different samples of a single material. It is noted that no two pieces of a single material have exactly the same properties. This is due to the many factors that the material is exposed to during manufacturing, as a result of forming processes, time, changes in temperature or . humidity, or other factors	Theoretical lectures to explain basic .concepts Presentations and visual aids to illustrate .information Class discussions to develop thinking .and analysis Solve exercises and problems to consolidate .understanding	Short exam and class discussions

Short exam and class discussions	Use of measuring . devices Implementation of practical . applications	B - Skills . Ability to work in manufacturing and production fields . Ability to work in a group to complete the work
Observing behavior and discipline within . the laboratory Assess compliance with safety procedures . Follow up on adherence to professional ethics in reports . and discussions	Enhancing accuracy and safety in the .laboratory Developing responsibility and .discipline at work Instilling a spirit of cooperation and .teamwork Establishing professional ethics and scientific integrity	C- Values Understanding the properties of materials, which ,determine how they behave under various conditions such as stress, strain, temperature, and other helps graduates improve the, environmental factors performance of their designs, reduce material waste, and . minimize the environmental impact of their work

Course structure(10

(Theoretical Vocabulary)

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Short theory .questions **Oral .discussion**	**Theoretical lectures** **.Demos** **Class discussions .**	**Definition of engineering materials**	**Definition of engineering materials and their importance . in industry Classification of engineering materials into metallic and non- . metallic**	**2**	**1**
Short written .test **Oral .questions**	**Theoretical explanation using .visual aids** **Illustrations of atomic structure**	**Atom, element, types of bonds in engineering materials**	**Understanding the structure of . the atom Identify the elements and their . importance**	**2**	**2**

	and .bonding		Distinguish between types of ,bonds (ionic ,covalent (metallic		
Multiple choice .questions Note class contributions .	Theoretical explanatio .n Images and illustrative .samples	Crystalline and amorphous materials	Distinguish between crystalline and amorphous .materials Know examples of .each	2	3
Crystal lattice drawing questions .Short test	Theoretical explanatio n and .diagrams .3D models Practical application s of .drawing	(BCC, Crystalline forms FCC, HCP)	Know the types of crystal .networks Drawing crystal .shapes Relate shapes to material .properties	2	4
Short theoretical questions Oral .discussion	Theoretica .l lectures Solve problems and .exercises	Mechanical properties of ,materials (stress, strain ,stress-strain curve (ductility, failure	Definition of stress and .tension Reading and analyzing stress-strain .curve Interpretatio n of ductile and collapse .properties	2	5
Short theory .questions Oral .discussion	Theoretical presentatio .n Show videos of	hardness, hardness test	Definition of hardness and its .importance Learn about hardness testing	2	7-6

	experiment .s		methods ,Brinell) ,Rockwell .(Vickers		
Short theory .questions Oral .discussion	Theoretica l presentatio .n Show videos of experiment .s	Durability, durability tests	Definition of durability and its .importance Know the types of durability tests (such as impact .(testing	2	8
Short theory .questions Oral .discussion	Theoretica l presentatio .n Show videos of experiment .s	Thermal properties of materials (thermal expansion, thermal (conductivity	Understand the concept of thermal .expansion Knowing thermal conductivity and its .importance	2	9
Theoretical .test Analytical .questions	Theoretica .l lecture Practical .examples	Electrical properties of ,materials (ionic ,insulating, metallic factors affecting (conductivity	Classificatio n of materials according to their electrical .properties Explain the factors affecting electrical .conductivity	2	10
Short theory .questions Oral .discussion	Theoretica l presentatio . n Illustration . s	Magnetic properties of materials (ferromagnetic materials, paramagnetic materials, diamagnetic materials, magnetic hysteresis, factors (affecting magnetism	Classificatio n of magnetic .materials Understandi ng the phenomenon	2	11

	Practical examples . or videos		of magnetic .hysteresis Identify the factors affecting magnetic .properties		
Theoretical . questions . Short test	Theoretical presentatio . n Illustration . s Practical examples . or videos	Iron, its most important ores, extraction, blast furnace, transformers	Knowledge of basic iron .ores Description of iron extraction .processes Understand the role of blast furnaces and converters in the iron .industry	2	12
Theoretical . questions . Short test	Theoretica .l lecture Industrial application .examples	Carbon steel, its most ,important types properties, and uses	Identify the types of .carbon steel Understand the characteristi cs and uses .of each type	2	13
Theoretical . questions . Short test	Theoretica .l lecture	Alloy steel, its most ,important types properties, and uses	Knowing the types of alloy steel and its . components Explanation of its properties and industrial . uses	2	15-14
Theoretical . questions . Short test	Theoretica . l lecture Show samples or	,Cast iron, its types properties, and uses	Identify the types of cast ,iron (grey ,white .(.ductile, etc	2	16

	illustration . s Class discussions .		Understand the characteristi cs of each .type Know the uses of cast iron in .industry		
.Short test Group .discussion	Theoretica .l lecture Display industrial samples or .prototypes	,Copper, its alloys properties, uses	Know the properties of .copper Identify its alloys (such ,as bronze .(brass Knowing its industrial .uses	2	17
.Short test Group .discussion	Theoretica . l lecture Video presentatio . ns	,Aluminum, its alloys properties, uses	To learn about the distinctive properties of . aluminum Knowing its alloys and its industrial . importance Identify its . various uses	2	18
Short test Group .discussion	Theoretica l explanatio . n Industrial . examples	,Nickel, its alloys properties, uses	Know the properties of . nickel Identify its alloys such as Inconel . and Monel Understand its industrial . applications	2	19
.Short test Safiya's participation .	Theoretica . l lecture Show pictures and . models	,Tin, its alloys, properties uses	Learn about the properties of .tin	2	20

			Knowing its alloys (such as bronze). Identify its uses in painting and welding.		
.Short test Safiya's participation.	Theoretical explanation. n . Demos	,Zinc, its alloys, properties uses	Knowing the properties of zinc. Identify its alloys such as brass. Determine its uses in galvanizing and plumbing.	2	21
.Short test Safiya's participation.	Theoretical lecture. Industrial examples.	,Manganese, its alloys properties, uses	Learn about the properties of manganese. Knowing its alloys and their importance. Determine its uses in the steel industry.	2	22
.Short test Safiya's participation.	Theoretical explanation. n Show samples or illustrations.	Other non-ferrous alloys (alloys white metals, bearing)	Knowing the components of white metals. Learn about bearing alloys and their importance. Knowing its uses in industry.	2	23
.Short test	Theoretical lectures. Presentations.	powder metallurgy	Definition of powder metallurgy	2	24

Safiya's participation .			and its . importance Knowing the methods of obtaining mineral . powders Distinguish between ,mechanical physical and chemical . methods Understandi ng the properties of powders ,physical) ,mechanical . (chemical		
.Short test Safiya's participation .	Theoretica . l lectures Presentatio . ns	Powder pressing, felting process	Knowing the steps of compressing . powders Understand the sintering process and its role in shaping final . parts	2	25
.Short test Safiya's participation .	Theoretica . l lecture Display of ceramic . samples	ceramic materials	Identify the types of ceramic . materials Knowing its properties and industrial . uses	2	26
.Short test	Theoretica . l lectures Glass making	,Glass, its types manufacture, and uses	Knowing the different types of glass .	2	27

Safiya's participation .	video presentatio . ns		Understandi ng the steps of glass manufacturi . ng Determine its uses in various . industries		
.Short test Safiya's participation .	Theoretica . l lecture Pictures and practical . examples	Concrete, its industrial uses	Definition of concrete and its . components Knowing its uses in industrial and engineering . fields	2	28
.Short test Safiya's participation .	Theoretica . l lectures Presentatio . ns	Polymers, polymer molecules, polymer types	Definition of . polymers Knowing its types ,thermal) flexible (.plastics, etc . Understandi ng the structure of polymer . molecules	2	29
.Short test Safiya's participation .	Theoretica . l lecture Display samples of . plastics	Properties and uses of plastics	Knowing the properties of thermoplasti cs and elastic . plastics Identify its various industrial . uses	2	30
Curriculum Development Plan (11					
.Update content to include new materials and techniques					

.Using modern educational methods (presentations, videos, field visits)	
.Diversify assessment methods (tests, practical experiments, reports)	
.Training teachers on modern teaching methods	
.Engaging the labor market by adding real-life industrial applications	
.Providing modern educational resources and an electronic library	
.Encouraging students to conduct research and applied projects	
(12 infrastructure	
Classrooms, laboratories and workshops	Available
Required textbooks -1	Available
Main References (Sources) -2	Smith, J. (2020). Engineering Mechanics: Dynamics. 14th Edition, McGraw-Hill Education. Beer, F. P., & Johnston, E. R. (2019). Mechanics of Materials. 8th Edition, McGraw-Hill Education.
Recommended books and references (أ (.scientific journals, reports, etc)	Gere, J. M. (2018). Mechanics of Materials. Cengage Learning. Journals: Journal of Mechanical Engineering Science, International Journal of Mechanical Sciences.
.....,Electronic references, websites (ب	https://www.sciencedirect.com https://www.engineeringtoolbox.com https://www.asme.org

Description of the engineering drawing course

Course name .1
Engineering drawing
Course code .2
TIHA 112
Available attendance forms .3
My presence
semester/year .4
Decisions
Number of study hours (total) .5
units 6/90=30*3
Date this description was prepared .6
2025-6-12
Course supervisor name .7
Name: Mahdi Qahraman Fakhreddine mahde-hwj@ntu.edu.iq :Email
Course objectives (general objectives of the course) .8
. Understanding the basic rules of engineering drawing using a computer- 1 **. Draw basic models using this program-2** **. Design and draw the proposed models-3**
Course outcomes, teaching, learning and assessment methods .9 **Course outcomes** **Engineering drawing** is a universal language for engineers and **: identification** technicians, used to convey design ideas with complete accuracy, in addition to ,.being a key tool for implementing manufacturing, infrastructure, architecture, etc that specify the characteristics(ISO/ASME/ANSI) by adhering to unified standards .of shape, dimensions, materials, tolerances, and the type of sections and surfaces **: Its importance** via orthogonal projection methods: **3D representation on a 2D surface :1** (front/top/side view) including length, angles, dimensions, line: **Accurate and clear specifications** :2 ,type, tolerances, materials, surface description, and data such as the artist's name . .references, and timelines So that it includes all the information necessary to ensure **? How is it determined** that the item is manufactured or implemented accurately and clearly. In general, the drawings . assemblyand outputs are divided into detail drawings

Outputs	Teaching and learning methods	Evaluation methods
أ- knowledge and understanding the basics Knowing - A1 .of engineering drawing using AutoCAD A2 - Knowing how to draw geometric shapes Basic computer use A3 - Knowing and understanding the 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	**Direct practical•** Using: **training** AutoCAD in practical lessons with the application of real examples in engineering . drawing **Interactive• : education** Combine short theoretical explanation with practical application, and encourage students to solve exercises gradually (from simple to complex . (**cooperation And• the offers** Implement small: projects within teams to enhance teamwork and present the results .for discussion	Follow -1 up on 'students performance step by step during practical ,lessons providing immediate feedback to improve . performance Use short -2 exercises after each unit to measure understandin g of key concepts and .commands
B - Skills -B1 - Drawing geometric shapes two dimensional B2 - Drawing geometric shapes 3D B3 - Execute commands to obtain the engineering drawing B4 - Putting the dimensions of the drawing and writing on the drawing	**Direct practical.1 : training** Using AutoCAD• in computer labs with gradual exercises (from simple to complex). **Project-based.2 : learning**	**Short -1 practical : evaluation** Quick tests• during classes to measure mastery of basic commands e.g., drawing)

D/3D 2shapes). **Applied -2 : projects** • Evaluate a final project such as) creating a complete engineering (drawing with an emphasis on accuracy and adherence to . standards **Peer -3 : assessment** • Students participate in evaluating each other's work under the supervision of the teacher to promote self- .assessment	• Implement small projects (such as creating electrical diagrams) to link theory with . practice **Collaboration.3 : and offers** • Work in teams to create integrated drawings and present the results for group .discussion	
Direct :evaluation This evaluation is carried out by the instructor directly, by observing the student's interaction during the lecture and	Stimulating the creative side of students by presenting various scientific problems and asking students to find appropriate scientific solutions for them in various ways. Developing the spirit of	C- Values A1 - Instilling a spirit of creativity in students and ensuring that they find innovative .solutions to various problems A2 - Developing students' ability to work as effective teams that produce distinguished .results A3 - Developing a sense of responsibility among students and preparing them psychologically to bear the burdens placed on .their shoulders

recording the notes. About that Practical projects: The student's ability to achieve and innovate, to work within teams, and to produce results and solutions to various scientific problems are .evaluated	cooperation among students by forming work teams and motivating students to make all necessary efforts to work in different circumstances and with different .people	A4 - Developing the values of diligence and perseverance in completing work to achieve .satisfactory results

Course structure **(Theoretical and practical vocabulary)** .10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Through participation and exams	Show about RoadPower point With the app	**The importance of engineering .drawing Getting to know the interfaces AutoCAD program**	Introducing the student to the interfaces program AutoCAD How to use	3	**1-2**
Through participation and exams	Show about RoadPower point With the app	**Display orders Drawing limits and units**	How to use Commands for purpose The drawing	3	3-4
Through participation and exams	Show about powerpoint path With the app	**Drawing accuracy commands GRID , POLAR, OSNAP**	Student education On how Using commands For more accurate drawing	3	5-6

Through participation and exams	Show about powerpoint path With the app	**Drawing commands Rectangle elements Circle, Polygon, Arc**	How to use Ready-made commands	3	7-8
Participation	Show about powerpoint path With the app	**Erase commands Copy, Move, Mirror,**	Student education Use Commands To modify and facilitate The drawing	3	9-10
Through participation and exams	Show about powerpoint path With the app	**Put different dimensions on Drawing elements and control it Using a square Dimensions mode dialogue**	Student education On the dimensions of the drawing precisely	3	11-12
Through participation and exams	Show about powerpoint path With the app	**Control specifications Drawing types ,of lines ,Element colors Its characteristics**	How to control Font type and color	3	13-14
Through participation and exams	Show about powerpoint path With the app	**Element drawing commands Ellipse, Donut, Wipeout, Revision Cloud**	How to use Commands to facilitate The drawing	3	15-16
Through participation and exams	Show about powerpoint path With the app	**Modification orders Offset, Other Scale, Stretch, Rotate**	Student education Use Commands To modify and facilitate The drawing	3	17-18

Through participati on and exams	Show about powerpoint path With the app	**Add texts ts methods and control With its specifications**	Knowing how Add text Line control olor and others	3	19-20
Through participati on and exams	Show about powerpoint path With the app	**Handling orders barParametric**	To know the account spaces zes and lengths	3	21-22
Through participati on and exams	Show about powerpoint path With the app	**Hovering and shading and sectors**	How to use misleading d specification and others	3	23-24
Through participati on and exams	Show about powerpoint path With the app	**Layers And control its settings**	Student education Use Commands to work Layers and control	3	25-26
Through participati on and exams	Show about powerpoint path With the app	**Blocks**	Teaching the student how to drawing blocks	3	27-28
Through participati	Show about powerpoint path With the app	**Types of blocks nd include it and control its . specifications**	Student education Types of blocks	3	29-30

on and exams					

.11 Curriculum Development Plan
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.** **2- Follow up on scientific developments in updating the program continuously.**

.12 infrastructure	
assrooms, laboratories and workshops	**uipped laboratories are available to accommodate students and are prepared provide a suitable environment for learning**
Required textbooks -1	**e prescribed engineering drawing lectures binder**
Main References (Sources) -2	**tps://faculty.uobasrah.edu.iq/uploads/teaching/1711798938.pdf**
أ) Recommended books and references (scientific journals, reports, etc.)	**ttps://www.smartdraw.com/cad/engineering-drawing-ftware.htm?srsltid=AfmBOoqDqQ2hjW1riiDu_ZmtTLd6-itW7EDrm7zUii1JMSEtmWi8ii2i**
ب) Electronic references, websites.....	**tps://www.qrcodechimp.com/page/srcyif3uvk4a4**

Mathematics course description

1. Course name
mathematics
2. Course code
THIA112
3. Available attendance forms
.Weekly lesson schedule (theoretical) Discussions, scientific seminars, and other extracurricular activities
4. Semester/year
First and second
5. Number of study hours (total) / Number of units
96 hours 3 units
7. Date this description was prepared
2025/6/12
8. Course supervisor name
Name Sara Burhan Ezzat Email sarah_burhan@ntu.edu.iq
9. Course objectives (general objectives of the course) **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

9.Course outcomes , teaching, learning and assessment methods

Course outcomes

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

Evaluation methods	Teaching and learning methods	Outputs
Test theory • Oral questions • Safiya's participation • Discussions and written questions	.Theoretical lectures _1 .Explanation using examples_2 .Presentations _3 Using visual and _4 .interactive means	: outputsKnowledge Acquiring basic mathematical concepts _1 .and terms Understanding and interpreting_2 mathematical theories and laws Distinguishing between different types of_3 .mathematical problems

Evaluate practical - 1 performance in solving .problems Homework and -2 .practical projects . Practical tests -3 Skills - based -4 .assessment	Solving classroom and _1 .individual exercises .Problem-based learning _2 Using educational programs_3 Mathematical .Excelr such as .applications in practical life	: outputsSkills 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
Classroom observation -1 of behavior .And discipline Colleagues evaluate -2 .each other Individual reports on -3 educational experience and .behavior Self-assessment -4 .questionnaires	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	:and Attitudes Third: Values 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

10. Course structure

Practical vocabulary

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week

,Explanation Questions and ,Answers Discussion	a lectur e	Determinants and their ,properties solving simultaneous equations using Cramer's determinant method	To introduce the student to determinants and their basic . properties The student calculates the value of determinants for . matrices of different orders To explain Cramer's method . for solving linear equations The student will use Cramer's method to solve systems of . simultaneous equations The student must verify that there is a unique solution to the system using the value of the . determinant	2	2-1
,Explanation Questions and ,Answers Discussion	a lectur e	,Differentiation Algebra of ,Derivatives Polynomial Functions	To introduce the student to the concept of differentiation and . the derivative of a function The student calculates derivatives of functions using . different differentiation rules The student applies the algebra .of derivatives The student calculates partial derivatives of functions of . multiple variables The student will be able to explain the engineering or physical applications of	2	5-3

			differentiation and partial . derivatives		
,Explanation Questions and ,Answers Discussion	a lectur e	,Trigonometric ,logarithmic and exponential functions, their derivatives, and implicit functions, the chain rule	To introduce the student to trigonometric, logarithmic and . exponential functions The student will calculate the ,derivatives of trigonometric logarithmic and exponential . functions To introduce the student to the . concept of implicit functions The student will apply differentiation to find the derivatives of implicit . functions To explain the chain rule and its importance in . differentiation The student will use the chain rule to find the derivatives of . composite functions	2	8-6
,Explanation Questions and ,Answers Discussion	a lectur e	Graphing ,functions graphing trigonometric ,functions maxima and .minima	To introduce the student to the . concept of graphing functions The student draws the curves of different functions . accurately The student will draw trigonometric functions and determine their properties	2	11-9

			such as: period, amplitude, and . displacement The student will determine the maximum and minimum limits . of functions using derivatives The student should explain the relationship between the first and second derivatives and the . shape of the function curve		
,Explanation Questions and ,Answers Discussion	a lectur e	Physical differentiation ,applications velocity and ,acceleration and engineering differentiation .applications	should explain the concept of applications of differentiation in the fields of physics and . engineering The student should define the concepts of velocity and acceleration as a derivative of . position with respect to time The student calculates the velocity and acceleration of the . motion functions of objects The student will apply differentiation to solve geometric problems such as ,finding slope, lengths of curves . and rates of change The student should explain the importance of differentiation in the study of physical and . engineering phenomena	2	13-12

,Explanation Questions and ,Answers Discussion	a lectur e	Integration, its laws, and its relation to ,differentiation definite and indefinite integration	should define the concept of integration and its types . (definite and indefinite) The student should mention the relationship between integration and differentiation the fundamental value) theorem of differentiation and . (integration The student will apply the basic rules of integration to calculate the integral of . functions The student calculates the definite integral to find areas . and numerical values The student will use indefinite integration to find the original . functions To explain the physical and engineering applications of . integration	2	15-14
,Explanation Questions and ,Answers Discussion	a lectur e	Implicit ,integration geometric (area (and volume and physical applications of integration	To introduce the student to the concept of implicit integration . and how to use it The student will apply integration to calculate the areas under curves and . between functions	2	19-16

			The student calculates the volumes of objects resulting from the rotation of curves . around the axes The student will explain the physical applications of integration, such as calculating . work, mass, or center of mass The student will use integration to solve various engineering and physical . problems		
,Explanation Questions and ,Answers Discussion	a lectur e	General methods of :integration ,substitution partial ,integration and the use of exponential and logarithmic partial .fractions	To introduce the student to the different methods of integration, such as substitution and partial . integration The student will apply the substitution method to calculate integrals of complex . functions The student will use the partial integration method to calculate the integral of the product of . two functions The student will apply the partial fractions method to calculate the integral of . rational functions	2	21-20

			The student will be able to calculate the integral of exponential and logarithmic functions using appropriate . methods The student should explain when to choose each method of . integration to solve problems		
,Explanation Questions and ,Answers Discussion	a lectur e	,Discrete homogeneous and linear differential equations with their various .applications	To introduce the student to the types of differential equations (discrete, homogeneous, linear) . The student should be able to distinguish between discrete and non-discrete differential . equations The student will solve separate differential equations using . integration methods The student will solve first-order homogeneous and linear . differential equations The student applies the ,solutions to physical . engineering and life problems The student should explain the importance of differential equations in studying various . scientific phenomena	2	25-22

,Explanation Questions and ,Answers Discussion	a lectur e	Vectors) vector and scalar product and calculating angles between .vectors	To introduce the student to the concept of vectors and their . components The student should explain the difference between the dot product and the vertical . product of vectors The student calculates the value of the dot product . between two vectors The student calculates the value of the cross product (perpendicular) and determines the direction of the . result The student will use quantum multiplication to calculate the . angles between vectors The student will apply vectors and their operations in engineering and physical . problems	2	27-26
,Explanation Questions and ,Answers Discussion	a lectur e	(Statistics) Principles and Theory of Probability	To introduce the student to the principles of statistics and its . importance in data analysis To explain to the student the basic concepts of probability . theory	2	30-28

			The student calculates the probability values for different . events The student should be able to distinguish between types of probability distributions (such as discrete and continuous . (distributions The student will apply the principles of probability to . solve real-life problems The student will be able to explain the relationship between statistics and probability in data analysis . and decision making		

Curriculum Development Plan .11	
Curriculum Development Plan Continuously updating the curriculum to keep pace with developments in the labor market (Curriculum :Update Committee, Scientific Committee) such as Course analysis and needs identification (review of current educational outcomes) -1 .Updating scientific content and diversifying teaching and learning methods -2 . Follow up on scientific developments and improve evaluation methods -3	
Infrastructure – 12	
Available	Classrooms, playgrounds and workshops
Available	Required textbooks -1

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

عمليات تصنيع

Course name (1		
Manufacturing operations		
Course code (2		
METP212		
Available attendance forms (3		
.Weekly lesson schedule (theoretical) Discussions, scientific seminars, and other extracurricular activities		
semester/year (4		
First and second		
Number of study hours (total) / Number of units (5		
units4 / hours120		
Date this description was prepared (6		
2025/6/12		
Course supervisor name (7		
M. Iyad Abdul Ramadan :Name Aradrmadan_hwj@ntu.edu.iq :Email		
Course objectives (general objectives of the course) (8		
.Learn the basics and techniques of manufacturing processes .Understanding material properties and their impact on manufacturing .Master basic operations such as cutting, welding, and plumbing .Adherence to safety procedures in workshops .Gain technical skills to solve manufacturing problems .Keeping up with the latest technological developments in the field		
Course outcomes , teaching, learning and assessment methods (9		
Outputs	Teaching and learning methods	Evaluation methods
أ- knowledge Knowing the different types of manufacturing processes and their techniques. Understand the properties of materials used in manufacturing. Understanding the steps and methods of production processes such as lathe, casting, welding, and forming. Learn about manufacturing tools, machines and their basic functions. Understanding the principles of occupational health and safety.	. Theoretical lectures . Presentations and visual media . Class discussions . Scientific books and references	Written exams theoretical) (questions. .Short tests Theoretical assignments and reports.
B - Skills Perform basic operations such as cutting, welding, and plumbing accurately.	. Practical training in workshops	Practical evaluation in workshops.

Observe performance while executing .operations Projects or pieces that are practically .implemented	Conduct practical experiments under the supervision of the . teacher Learning by observation and . application Working on manufacturing . machines and equipment	Use manufacturing tools and machines .properly and safely Reading and understanding industrial .drawings and blueprints Implementing safety procedures in .workshops .Resolving technical issues facing operations
Observe the student's behavior . in the workshop Evaluate compliance with safety and . discipline rules Participation and cooperation in . teamwork	good example from the A . teacher Discussing practical situations . and stories that reinforce values Guide students during work on the importance of commitment . and discipline Teamwork to develop the spirit of cooperation and . responsibility	C- Values Commitment to occupational health and .safety rules Be accurate and disciplined when .performing operations .Respect for teamwork and team spirit Conserve equipment and materials and .reduce waste Integrity and responsibility in industrial .performance

Course structure (10

(Theoretical Vocabulary)

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Short questions during the .lecture Simple assignments .or reports	Theoretical .lectures PowerPoint .presentations Practical examples and exercise .solutions	,Geometric tolerances ,couples, couple systems tolerance orders, couple ,units, basic deviations	Definition of the concept of geometric .tolerance and dualities Classification of duplication systems and .their types Distinguish between tolerance ranks and .duplication units Understand the concept .of basic deviations	4	1
Written . exams Solve practical . problems Analytical . reports	Theoretical explanation using . illustrations . Case studies Class . discussions	Types of tolerances, hole basic system, column basic ,system, doublets symbols tolerances for loose ,dimensions Detailed dualities, choice of dualities and their economic .advantages	: Learning outcomes Identify different types . of tolerances Explain the basic hole system and the basic . column system Reading and understanding duality . symbols	4	2

			Know the tolerances for free dimensions and . detailed dualities Evaluating the economic choice of different types . of dualities		
Theoretical . questions Graphic reading tests . Class assignments . or exercises	Lectures supported by drawings and . examples Practical exercises on reading engineering . drawings	For geometric tolerances in shape and position and types of shape and position .tolerances	Definition of shape and . position tolerances Distinguish between types of shape tolerances such as ,straightness, roundness ,flatness, parallelism . symmetry, and position Use standard symbols . for these tolerances	4	3
Practical test using measuring . instruments Theoretical . questions Short reports .	Theoretical explanation supported by images or actual samples of . devices Field visits or equipment . demonstration Practical training on the use of measurement . determinants	,Measurement parameters measurement parameters design, types of measurement parameters (internal ,measurement parameters external measurement ,parameters Adjustable gauges, solid gauges, special gauges	Definition of measurement determinants and their . function Classification of types of measurement . determinants Design of measuring devices for various . purposes	4	4
Theoretical . exam Short . questions A simple report on an . experiment	Theoretical . lectures Video presentations explaining the formation of the . Reich Analysis of Reich samples from actual . operations	Metal fabrication class, metal working, introduction to chip formation theory and influencing factors, methods of fixing workpieces including round and non- ,round, cutting edges used and longitudinal and . transverse feed stocks	Classification of metal manufacturing and . processing operations Understand the basis of the formation of the . Reich Analysis of factors affecting the cutting . process	4	5
Practical evaluation during the . workshop Theoretical . test	Practical demonstration . of machines Training students to install . themselves	Learn about the pens used and how to hold them for . crafts, lathe pens	Learn about different parts installation . methods Distinguish between the types of cutting edges and longitudinal and . transverse feeding	4	6
Practical test .	View samples of . pens	To learn about the types of lathe pen angles, the effect of	To learn about the types . of lathe pens	4	7

Short .questions	Practical exercises on . installing pens	lathe pen angles on the cutting process, and the types .of lathe pen metals	Knowing how to install . pens Distinguishing the . formation of lathe pens		
Solve math . problems Theoretical . test	Theoretical lectures with tables and maps . Arithmetic . exercises	Cutting conditions, cutting elements, uses of cutting speeds, use of speed tables and charts, classification of several Cuts for operating methods .and number of cutting edges	Determine the angles of lathe pens and their . functions Identify the metals of . pens Calculating cutting . speeds and using tables	4	8
Theoretical . questions Class . discussions	Theoretical . lectures Explanatory . videos	The categorical limit, the emerging categorical limit and the theory of its formation, the factors affecting it, the factors that ,lead to a reduction in its size Cooling and its importance .for cutting operations .Different coolants	Understand the concept of a secant and how it is . formed Identify the factors . affecting its formation Know the role of coolants and cutting . fluids	4	9
Practical test .	Explaining the steps for preparing the . operating card Practical . exercises	How to create an operation card for a group of operations, calculate its elements, and calculate the cutting time for each operation	. Set up a running card Calculate the cutting . time for each operation	4	10
Project or practical . exercise Short . questions	Theoretical . explanation . Case studies	How to use the sequence card to create a product path .through the different units Factors affecting the (-selection of cutting speed: 1 Influence of cutting tool properties 2-) Influence of (-operating elements, 3 Influence of Properties of the working .metal	Use the sequence card to plan the production . route	4	11
Solve math . problems Theoretical . test	Theoretical . lectures Mathematical . examples	,Turret lathe machines automatic, study of the operations that can be operated and analysis of the ,operations on the product how .Preparing operating cards	Determine the factors affecting the selection of cutting speed (cutting tool, operation, metal . (properties	4	12
practical .control Theoretical .questions	Theoretical . explanation Practical demonstration . of machines	Types of numbers used and their arrangement on the front and back hexagonal and .quadrilateral heads	Learn about the types of turret and automatic . lathe machines Analysis of different . processes	4	13

practical .control	Display actual . equipment Practical . training	Study how to program automatic lathes and the factors affecting the . operating steps	Knowing the types of numbers and their . correct order	4	14
Practical test on programming . Theoretical . questions	Theoretical . lectures	Milling, identifying the operations that can be performed on milling machines, parts and components of horizontal milling machines The vertical and the nature of .the work of each part	Learn the steps of programming . programmed lathes	4	15
Practical test . Theoretical . questions	Show real . samples Practical . exercises	,Machine accessories dividing heads, workpiece fastening tools, mandrels and . bushings	Knowing the types of accessories and their . functions How to use it in linking . crafts	4	16
Practical test . Theoretical . questions	Theoretical . explanation Practical demonstration . of machines	Types of disc and finger milling knives, gear opening knives, milling knife angle	Learn about the different . milling processes Knowing the parts of milling machines and . their functions	4	17
Practical test . Theoretical . questions	Show real . samples Practical . exercises	Explaining the steps of milling operations, choosing the appropriate machine, the initial dimensions of the workpieces, and methods of .connecting the workpieces	Knowing the types of accessories and their . functions How to use it in linking . crafts	4	18
Practical test for milling a . simple gear Theoretical questions about milling steps	Theoretical explanation with . illustrations View ready gear . samples Practical training on milling . machines	Milling different types of ,gears: bevel, bevel, helical worm gears	Learn about different . types of gears Knowing the steps of the freezing process for . each type Identify the tools and machines used in gear . milling	4	19
Theoretical . questions Draw the dovetails . themselves	Theoretical lectures supported by models or .videos Illustration of interlocking .sections	shape gear-V	Understand the working V and principles of Gnfari interlocks. Knowing where to use . each type of interlock	4	20
Solve math . problems Theoretical . test	Theoretical . lectures Arithmetic . exercises	Operating rates, cutting and feed speeds and their selection criteria for the	Determine the appropriate operating rates for each milling . operation	4	21

	Discussion of . practical cases	following various milling operations	Calculate cutting and . feed speeds Choosing the optimal conditions to achieve quality and economic . operation		
Practical test . Theoretical . questions	Practical demonstration of scraping . machines Theoretical . lectures	Scraping: Definition of the ,types of scrapers (trolley butt, vertical), operations carried out on the scraping machine, capabilities Available operation of each machine, methods of connecting the workpieces	Learn about the types of scrapers and their . functions Distinguish the operating capabilities of . each type Knowing the methods of connecting the workpieces in the . scraping machines	4	22
Solve math . problems Practical test .	Theoretical . lectures Practical training on . machines	Operating rates of cutting and feed speeds, planer accessories such as dividing ,heads or special devices planer angles, and types of . forces acting on them	Calculation of cutting and feeding speeds in . scraping Knowing the angles of the scraping pens and their effect on the . process Determine the forces acting on the pen and . the piece	4	23
Solve math . problems Practical test .	Practical demonstration of the butt . scraper Arithmetic . exercises	Butt planer, explanation cutting stroke, return) stroke), connection methods on the butt planer machine ,and operating rates calculating the cutting time for planing, numbering the . sequence card for planing	Understand the mechanics of the break- . in and return stroke Knowing how to . connect pieces Calculate the cutting time and prepare the . operating card	4	24
Theoretical . test Practical evaluation in the grinding . workshop	Theoretical lectures with demonstration of grinding . stone samples Videos explaining the . process	Grinding: Introduction to cutting theory and chip shape ,in the grinding process grinding stones used ,circumferential, face, side) cup, external, internal), their ,specifications and uses connection methods and their . balances	Understanding the nature of cutting in . grinding Learn about the types of grinding stones and their . specifications Knowing the correct methods of linking and . balancing	4	25
Practical test . Theoretical . questions	Theoretical . explanation Practical demonstration . of machines	Different grinding machines and the operating capabilities of each type (external and internal cylindrical grinding machines, tool sharpening (machines	Distinguish between types of grinding machines and their . functions Knowing the operating capabilities of each type .	4	26

Handing in operating cards as a . duty Practical test .	Practical training on preparing . operating cards . Case studies	Comprehensive operating card numbers for all cutting . operations	Prepare an operating card that shows the ,operations, equipment time, and operating . conditions	4	27
Theoretical . questions Class . discussions	Theoretical . lectures Show explanatory . videos	Metal forming: forming theory, cold and hot forming . principles, types of forming	Knowledge of metal . forming principles Differentiate between . cold and hot forming Learn about the different types of forming .operations	4	28
Theoretical . questions Solve simple . problems	Theoretical . lectures Videos explaining the rolling processes .	Rolling: Rolling basics and ,methods, rolled products sequence of operations in ,rolling, machines used conditions for completing the : rolling process. Extrusion basics of metal extrusion and the metals used, direct ,extrusion, reverse extrusion . types of extrusion products	Understand the basics of . the rolling process Knowing the sequence of operations in rolling . mill Identify the machines and the resulting . products	4	29
Solve math . problems Theoretical . questions	Theoretical . lectures Arithmetic . exercises	: Cutting and Punching Fundamentals of cutting operations, types of dies and ,their parts, in each case dimensions of the raw material and methods of selecting them, calculation of Drawing and. shear force ,Each case: Deep Drawing ,types of drawing fundamentals of drawing and ,deep drawing operations calculation of drawing forces and special ratios in and their . uses	Learn the basics of . cutting operations Identify the types of . molds and their parts Calculate the required . shear force	4	30

Curriculum Development Plan (11

. Introducing modern teaching methods .2. Updating scientific and technical content .1

. Providing modern equipment .4. Developing practical training and workshops .3

. Organizing field visits .6. Linking the material to the labor market .5

Training teachers on new developments .7

infrastructure (12

Available	Classrooms, laboratories and workshops
Available	Required textbooks -1
Manufacturing Engineering and Technology – Serope Kalpakjian & Steven Schmid Fundamentals of Modern Manufacturing – Mikell P. Groover Manufacturing Processes for Engineering Materials – Serope Kalpakjian Materials and Processes in Manufacturing – E. Paul DeGarmo et al. Modern Manufacturing Processes – Muammer Koç	Main References (Sources) -2
Journal of Manufacturing Processes (Elsevier) Journal of Materials Processing Technology (Elsevier) CIRP Annals – Manufacturing Technology International Journal of Advanced Manufacturing Technology (Springer) Reports and technical papers from ASTM, SAE, ASME	Recommended books and references (أ (.scientific journals, reports, etc)
) free materials on manufacturingMIT Open Courseware (https://ocw.mit.edu website (Video lectures on manufacturingnptel.ac.in) https://nptel.ac.in processes) website (technical tables and dataEngineering Toolbox https://www.engineeringtoolbox.com) platforms (free and paid coursesedX andCoursera website for scientific researchScienceDirect https://www.sciencedirect.com	.....,Electronic references, websites (ب

Course name (1
First manufacturing operations
Course code (2
(METP112)
Available attendance forms (3
. Weekly lesson schedule (theoretical) + (practical) Discussions, scientific seminars, and other extracurricular activities
semester/year (4
First year/first semester + second semester
Number of study hours (total) / Number of units (5
units4 / hours120
Date this description was prepared (6
2025/6/12
Course supervisor name (7
M.M. Ziad Khalaf Hamad :Name zyadmech-haw@ntu.edu.iq :Email
Course objectives (general objectives of the course) (8
Graduating intermediate cadres capable of working in the fields of manufacturing and production to contribute to the following tasks: **1. Ability to analyze processes into operating elements.** **2. Number of technological paths between production units** **3. Number of operating cards and orders for each unit and each machine, and calculation of operating time and loading programs for the units.** **4. Determine the elements of control and quality control.** **5. Conduct preliminary calculations of operating costs.**
Course outcomes , teaching, learning and assessment methods (9

Outputs	Teaching and learning methods	Evaluation methods
أ- knowledge 1. Understanding the principles of manufacturing and various processes (machining, filing, carpentry, welding, casting, forming). 2. Knowing the types of materials used in manufacturing (metals, plastic, wood). 3. Analyze and improve manufacturing processes to increase efficiency and productivity. 4. Applying knowledge in the design and implementation of manufacturing processes. 5. Understanding the importance of quality and safety in manufacturing processes.	Theoretical lectures to explain scientific concepts and foundations. Class discussions to enhance understanding and exchange of ideas. Presentations Application projects for designing and implementing	Theoretical exams to measure understanding of concepts. Evaluating practical projects to measure applied skills. Reports on practical experiments to measure analytical ability.

Evaluate classroom participation and activity to measure interaction and cooperation. Practical exams in manufacturing workshops to measure practical skills. Evaluating research projects on specific topics in manufacturing processes. Evaluating 'students participation in class discussions. Preparing short scientific research or reports.	manufacturing processes Reading books and scientific references. Assign students short research papers on specific topics.	
Monitoring - students while they carry out manufacturing processes. Evaluating - projects undertaken by students, such as designing and implementing a specific manufacturing process. Evaluating the - quality of the final product and its compliance with the required standards. Conducting - practical exams to 'measure students skills in implementing manufacturing processes. Evaluating - reports submitted by students on practical projects or experiments. 'Assess students - ability to document and analyze results.	Providing - opportunities for students to practice practical skills in manufacturing workshops. Students are - guided by experienced trainers. Assign practical projects to students to design and implement manufacturing processes. Encourage teamwork and cooperation among students. Enhancing communication and teamwork skills. Use electronic resources such as educational videos and educational programs. Organizing visits to factories and manufacturing facilities to learn	B - Skills 1- Use of manufacturing tools and equipment. - Implementing various manufacturing operations (machining, forming, welding). 2. Analysis of manufacturing processes. - Improve manufacturing processes to increase efficiency and productivity. 3- Design of manufacturing processes. - Use simulation software to design manufacturing processes. 4- Implementing practical projects. - Applying theoretical knowledge in practical contexts. 5. Teamwork. - Effective communication. - Time and resource management. 6- Use of technology in manufacturing (such as: computer-aided design (CAD) programs). - Understanding and using modern manufacturing techniques. - Analyzing problems in manufacturing processes. - Finding effective solutions to problems.

	about practical applications. - Providing opportunities for students to link theoretical knowledge with practical applications. - Evaluating 'students' performance in practical projects and exams. - Providing constructive feedback to improve student performance. - Teaching students how to analyze problems in manufacturing processes. - Encourage students to find innovative and effective solutions to problems.	- Encourage students to provide feedback to each other about their performance on practical projects. - Enhancing communication and cooperation skills among students. - Conducting theoretical exams to measure 'students understanding of concepts and processes in manufacturing. - Assessing students' ability to apply theoretical knowledge to solve problems. - Use assessment tools such as observation logs or assessment questionnaires.
C- Values - Commitment to high quality standards in products. - Ensure product reliability and durability. - Ensuring the safety of workers and employees in the work environment. - Commitment to safety and accident prevention standards. - Improve the efficiency of manufacturing processes to reduce costs and increase productivity. - Using technology and innovations to improve operations. - Reducing the environmental impact of manufacturing processes. - Use of environmentally friendly materials and processes. - Encouraging innovation and continuous development of manufacturing processes. - Applying modern technology to improve products and processes. - Compliance with laws, regulations and ethical standards in manufacturing operations. - Ensure fair and equitable labor practices for all workers. - Enhancing customer satisfaction with products and services. - Listen to customer needs and improve products accordingly. - Enhancing cooperation between different departments within the organization.	Class discussions on engineering ethics. Teamwork to develop a spirit of cooperation and responsibility to Case studies establish the values of accuracy and quality. Encourage students to give presentations and share opinions with confidence. Motivate students to adhere to safety standards in design and implementation. Present hypothetical situations to stimulate value-based thinking and sound decision-making.	Written exams (short and final). Short tests during lectures. Oral questions to measure immediate understanding. Homework to encourage self-reflection. 'Evaluating students participation in class discussions. Preparing short scientific research or reports.
Course structure (10		

(Theoretical Vocabulary)					
Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
short exam	Theoretical lectures Practical lectures	Definition of measurement and units of measurement, error and its causes, methods of measuring main dimensions, simple conveyor measuring devices	He learns about ,measuring tools learns measurement methods, knows their types, and learns to distinguish between .them	4	1
Written test practical control	Theoretical lectures and exercises practical	,Measuring instruments (furnaces) .their parts, uses, and types	Learn to handle various precision measuring .tools	4	2
Written test practical control	Theoretical lectures and practical application	,Micrometers, their types, uses parts, and the idea of how a .micrometer works	Learn the process of casting and the tools used .in preparing sand molds	4	3
Written test practical control	Lectures and exercises Applied	Measuring templates and their .uses, types, and how to use them	Learn how to measure with different types of measuring cups and how to .use them	4	4
Written test practical control	Lectures and exercises Applied	Measuring angles and lateral .shapes. Angle measuring tools Measuring rods (calipers) and .their types	Learn to measure angles with angle measuring tools, measuring rods (protractors), and their .types	4	5
Written test practical control	Theoretical lectures Practical exercises	,How to measure screw elements outer and inner diameters, step ,measurement and step diameter electronic mechanical .comparators	Learn how to measure screw elements, outer and inner diameters, step measurement and step .diameter	4	6
Written test practical control	Theoretical lectures Practical lectures	Optical device, some modern measurement methods (acoustic (frequency meters, digital optical	Familiarize yourself ,with the optical device and some modern measurement methods acoustic frequency) (meters, digital optical	4	7
Written test practical control	Theoretical lectures Practical lectures	Filing and its role in industrial development, the shankering process, the tools used and the operations included in the filing process, the files used and their specifications, the machines and their types and methods of attaching workpieces to them, the	Knows filing and the process, the shankering process, the operations involved in the filing process, the files used, the uses of files, and the .method of cleaning files	4	8

		uses of files, and the method of .cleaning files			
Written test practical control	Theoretical lectures Practical lectures	Sawing, conditions required for sawing, saw blade, crowns and their types, burrs, how to sharpen and maintain them, types of hand hammer heads and how to install .them	,Learn the sawing process the conditions required for sawing, saw blades, how to sharpen and maintain them, types of hand hammer heads and how to .install them	4	9
Written test practical control	Theoretical lectures	Drilling and milling, types of drills, types of primers, types of reamer, how to perform drilling .and milling	,Learn drilling and milling types of drills, how to perform drilling and .milling	4	10
Written test practical control	Theoretical lectures Practical lectures	Models, their types, the wood used in their manufacture, and the conditions that must be met in the .model	Learn about model making, its types, the woods used in its manufacture, and the conditions that must be .met in the model	4	11
Written test practical control	Theoretical lectures Practical exercises	Tools and equipment used in model making, square molds, and .how to design a simple model	Learn about the tools and equipment used in model ,making, the square molds and how to design a simple .model	4	12
Written test practical control	Theoretical lectures Practical lectures	,Plumbing, historical overview methods, main methods of plumbing (casting plumbing, sand casting, metal mold casting, other methods of plumbing) advantages .of the plumbing process	,Learn about plumbing ,sand casting, die casting and other plumbing .methods	4	13
Written test practical control	Theoretical lectures Practical exercises	Pulp, its types, pulp sand, mixing ratios and additives, stages of its production (mixing and preparing the sand, making the core, drying it), the benefits of the drying process, ovens or methods of drying the cores and their .equipment	,Learn about pulp making its types, pulp sand, mixing ratios and additives, and learn about the benefits of the oven drying process or the methods of drying the .cores and their equipment	4	14
Written test practical control	Theoretical lectures Practical lectures	,Metal die casting, its types .centrifugal casting, and its types	,Learn metal mold casting its types, centrifugal .casting, and its types	4	15
Chapter Two Vocabulary					
Written test practical control	Theoretical lectures Practical exercises	,Lost wax plumbing continuous plumbing, shell .plumbing	Learn lost wax plumbing, continuous plumbing, shell .plumbing	4	16
Written test practical control	Theoretical lectures Practical lectures	Measuring templates and their uses, types, and how to use .them	Learn measurement with measuring cups and their types	4	17

Written test practical control	Theoretical lectures	,Metal smelting and its basics ,types of smelting furnaces tinder furnace, main dimensions and operating method, pellet furnace, electric arc furnace, reverberatory .furnace, rotary furnace	Learn furnace operation ,and smelting method blast furnace, electric ,arc furnace ,reverberatory furnace .rotary furnace	4	18
Written test practical control	Practical lectures Theoretical lectures	Casting, its equipment and foundations, cleaning of ,castings, casting defects .casting inspection	Learn casting, cleaning ,castings, casting defects .casting inspection	4	19
Written test practical control	Theoretical lectures Practical exercises	Welding, basics of welding metals, explanation of the main welding methods pressure welding, electric arc) welding, other methods of fusion welding, tungsten ,(welding and caustic welding .types of welding joints	Learn welding, basics of ,welding metals explanation of the main methods of welding	4	20
Written test practical control	Practical lectures Theoretical lectures	Hot pressure welding including (electric resistance welding including spot and ,(line welding, flash welding ,cold pressure welding ,explosive pressure welding .ultrasonic pressure welding	Learn about hot pressure welding including electric resistance) welding including spot and line welding, flash (welding	4	21
Written test practical control	Theoretical lectures Practical application	,Fusion welding, gas welding oxy - hydrogen welding and oxy - acetylene welding, types of flames, right-handed and left-handed welding, oxy- .acetylene cutting	,Learn fusion welding - gas welding, oxy acetylene welding, types of flames, right-hand ,and left-hand welding and oxy-acetylene .cutting	4	22
Written test practical control	Theoretical lectures Practical lectures	Electric arc welding, welding current, direct and reverse polarity method , types of electrodes, metal electrode .coating and its types	Learn electric arc .welding	4	23
Written test practical control	Theoretical lectures Practical exercises	Electrode movement, methods of isolating electrodes and welding area, electric arc welding using shielding gases ,carbon dioxide welding) argon arc welding, tig (welding	Learn electrode movement, argon arc welding, and arc .welding	4	24
Written test practical control	Theoretical lectures Practical lectures	,Atomic hydrogen arc welding submerged arc welding, fusion .welding	Learn atomic hydrogen arc welding, submerged arc welding, and fusion .welding	4	25

Written test Practical exercise	Theoretical lectures	Welding, brazing, and some modern types of welding (laser welding, electron beam .(welding	,He learns welding welding with arc welding (mortar welding and welding with arc welding), and some modern types of welding laser welding, electron) .(beam welding	4	26
practical control	Practical lectures	.Welding defects, welding tests	Recognizes welding defects, welding testing .methods	4	27-28
Written test	Theoretical lectures	Metal forming, forming theory, and the basics of cold ,and hot forming blacksmithing, the basics of blacksmithing and its methods ,(manual, mechanical) ,blacksmithing equipment manual and mechanical, and elements of blacksmithing of .stables	Learn and recognize metal forming processes .and forming theory	4	29-30

(11 Curriculum Development Plan

:Updating the course vocabulary to keep pace with modern developments through

- Adding information about additive manufacturing technologies such as 3D printing and their .applications in industry
- Include information on the use of robotics and automation in manufacturing, welding, and .machining processes
- Adding topics on the application of artificial intelligence and machine learning in improving .manufacturing and quality processes
- Explain how the Industrial Internet of Things can be used to monitor and improve production .processes
- .Adding real-life industrial examples to link theoretical study to practical application
- .Developing teaching methods to include e-learning and interactive presentations
- Add details about advanced welding techniques such as laser welding and electron beam .welding
- Include topics on sustainability in manufacturing and reducing the environmental impact of .production processes
- Organizing field visits to factories and workshops to observe practical applications. Continuously updating scientific references to include the latest international books and research in

	. manufacturing processes
	infrastructure (12
Available	Classrooms, laboratories and workshops
Available	Required textbooks -1
Manufacturing Processes for Engineering Materials by Serope Kalpakjian , Steven Schmid Metalworking: Science and Engineering by Kuznetsov Manufacturing Engineering & Technology by Serope Kalpakjian , Steven Schmid Operations Management by Jay Heizer, Barry Render Production and Operations Management by R. Panneerselvam	Main References (Sources) -2
Manufacturing Engineering by Mohamed Ibrahim Adawy Design and manufacture of operating machines by Mohamed Abdel Rahim Manufacturing operations 2 for Osama Mohammed Al-Mardi Suleiman Production and Operations Management by Abdul Razzaq Ramadan Ali Shabshaba Principles of Materials Technology and Manufacturing Processes by Mohamed Ibrahim Adawy	Recommended books and references (i (.scientific journals, reports, etc)
Free courses in engineering and :MIT OpenCourseWare .manufacturing from MIT Free courses in engineering and manufacturing :NPTEL - .from Indian Institutes of Technology A site that provides tools and :Engineering Toolbox - .resources for engineering and manufacturing A site that provides resources and :Mechanical Engineers - .information about mechanical engineering and manufacturing	.b) Electronic references, websites, etc

وصف المقرر ميكانيك هندسي

(1 Course name	
Engineering Mechanics	
(2 Course code	
METP120	
(3 Available attendance forms	
• Weekly lesson schedule (practical + theoretical).	
Discussions, scientific seminars, and other extracurricular activities	
(4 semester/year	
• First and second	
(5 Number of study hours (total) / Number of units	
units3 / hours 96	
(6 Date this description was prepared	
2025/6/10	
(7	
M. Fattah Hamad Hassan :Name fattah_hwj@ntu.edu.iq :Email	
(8 Course objectives (general objectives of the course)	
• 2. Introducing students to the principles and fundamentals of engineering mechanics Identifying different methods for performing calculations related to forces and their effects on Explaining that the subject represents a very. 3. two- and three-dimensional systems important introduction to other topics for the subsequent stages of study. 4. Building a scientific foundation for the student to ensure the ability to understand related material in the subsequent stages.	
(9 Course outcomes , teaching, learning and assessment methods	
Outputs	Teaching and learning methods	Evaluation methods
Cognitive objectives The student will be able to analyze forces and their The. dependencies in any engineering system student will acquire the ability to link the curriculum topics and their relationship to the design of mechanical parts in a simplified manner.	Theoretical lectures . Solve exercises and problems . Group discussions . Simulation and practical models . Assignments and reports .	(Practical tests + reports)

Test students practically on the performance of specific skills.	Theoretical lectures . Solve exercises and . problems . Group discussions Simulation and . practical models Assignments and . reports	Course Skill Objectives 1. Forming a theoretical background through . explanations, examples, questions and answers 2. Discussion and giving students the opportunity to . .express their opinions on solving problems 3. Provide students with exercises and encourage Provide. them to ask questions and answer them students with homework exercises accompanied by a discussion of errors and weaknesses.
. Written exams . Solve homework . Safiya's participation . Reports or presentations . Practical tests	Theoretical lectures . Solve exercises and . problems . Group discussions Simulation and . practical models Assignments and . reports	C- Values . Accuracy and commitment . Analytical thinking Teamwork . Professional ethics and continuous learning

Course structure (10

Practical vocabulary

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Oral application question + homework	Theoretical + explanation exercises	Static, fundamental concepts, Force, Scalars and, Vectors, Units, Force polygon,	Definition of static - dynamics and its importance. Understand the - properties of force, identify its components, and draw them. Learn about units - of measurement of force and mass, and understand the International System (SI) of Units. How to construct - draw, and analyze power multipliers to solve problems. Applying the - conditions of equilibrium and the law of rest to systems.	2	3-1

			Use theoretical - concepts in practical .experiments Analyze data and - solve problems .related to forces Presenting results - using graphs and .charts		
Exams Duties . Safiya's participation Reports or . presentations	Lectures and . examples Solve . exercises . Illustrations Practical . applications	Cartesian components	Definition of Cartesian compounds . Vector analysis into . its components Calculate the length . of the vector Application of vehicles in engineering problems .	2	4
.Written exams Classroom homework .and questions .Interactive questions	Theoretical lectures and illustrative .examples Solve classroom problems and practical .exercises	Analysis of Forces	Define the types of forces and analyze . them Analysis of forces into their Cartesian . components	2	5
.Short exams .Solve exercises .Safiya's posts	Theoretical explanations . and graphs Solve practical . problems	Resultant of Concrrent , Coplanar Force system (2-D)	Finding the resultant of forces acting in (2D). one plane Application of drawing and numerical analysis . methods	2	6
. Written exams Solve problems and . exercises	Lectures with practical . applications Illustrations . and diagrams	Moments	Definition of the concept of moments .and their types Calculating the moment of force .about a point or axis	2	7
. Written tests . Classroom issues Safiya's participation	Theoretical explanation with illustrative . examples Exercises on power conversion	Couples, transformation of the Couple and the force	Definition of the concept of couple its characteristicsand . Transfer forces to a new point of action with the equivalent pair	2	8

	problems and . pairs				
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures supported by . examples problemsD3 using graphics or engineering .software	Resultant of non-Concurrent, Coplanar force system (3-D).	Calculating the resultant of non-convergent forces in three-dimensional . space Analysis of moments resulting from forces . in the system	2	9
Exams . Practical exercises Classroom Participation Assessment	Theoretical explanations and . illustrations Interactive exercises	Equilibrium, free body diagram (FBD)	Draw a free body . diagram Determine the forces acting on objects	2	10
Exams . Practical exercises Classroom Participation Assessment	Lectures and mathematical . examples Solve classroom . problems	Equilibrium Conditions (2-D)	Explain the conditions of equilibrium for forces (2D) plane. in the Solving equilibrium problems using equations	2	11
Exams . Practical exercises Classroom Participation Assessment	Lectures and mathematical . examples Solve classroom . problems	Equilibrium Conditions (3-D)	Definition of equilibrium conditions for forces in three-dimensional . space Solving three-dimensional equilibrium problems .	2	12
Exams . Practical exercises Classroom Participation Assessment	Lectures and mathematical . examples Solve classroom . problems	Friction, Dry Friction	Define the force of friction and its types . for the student Calculating dry friction force in engineering . applications	2	13
Exams . Practical exercises Classroom Participation Assessment	Lectures and mathematical . examples Solve classroom . problems	Center of Gravity, Centroid (length, area), Centroid of Simple area	Definition of center of gravity and geometric center (Centroid). Calculating the center of gravity for simple . lengths and areas	2	15-14
Exams . Practical exercises	Theoretical lectures with . illustrations	Centroids of Composite areas.	Definition of the centroid concept of for compound shapes .	2	16

Classroom Participation Assessment	Solve practical . problems		centroids Calculate for compound regions using integration or . partitioning shapes		
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures with . illustrations Solve practical . problems	Moment of inertia (Simple and Composite areas).	Definition of Moment of Inertia for simple and . compound shapes the Calculate Moment of Inertia . about different axes	2	17
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures with . illustrations Solve practical . problems	2-Dynamics type of motion, Linear motion with constant speed.	Definition of linear motion at constant . velocity Calculate displacement, time . and velocity	2	18
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures with . illustrations Solve practical . problems	Linear motion with constant acceleration.	Explain the laws of motion with constant . acceleration Solve physics problems about linear . motion	2	19
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures with . illustrations Solve practical . problems	Newton's Second Law	Definition of Newton's second law . Apply the law to ,calculate forces acceleration, or mass .	2	20
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures with . illustrations Solve practical . problems	Curvilinear motion	Definition of . curvilinear motion Analysis of motion . into its components	2	21
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures with . illustrations Solve practical . problems	Angular motion, Relative Motion.	Explanation of angular motion and . its concepts Definition of relative motion between . objects	2	22
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures with . illustrations Solve practical . problems	Work, Energy, Power	,Definition of work . energy and power Calculating work and energy in physical . systems	2	23
Exams . Practical exercises	Theoretical lectures with . illustrations	3-Strength of material: Fundamental concept, Loads, Stress, Strain, Elasticity, Plasticity, Deformation.	Definition of the ,concepts of force . stress, and strain	2	24

Classroom Participation Assessment	Solve practical . problems		Distinguish between elastic and plastic behavior of materials .		
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures with . illustrations Solve practical . problems	Hook's Law, Stress-Strain Curve, Type of Stress	Explain Hooke's law and the relationship between stress and . strain Reading and analyzing stress- . strain curve	2	25
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures with . illustrations Solve practical . problems	Normal stress due to an axial load on 1- Uniform cross section area 2- Variable cross section area.	Definition of normal stress resulting from . axial loads Calculation of normal stress for regular and . variable sections	2	26
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures with . illustrations Solve practical . problems	Shear Stress, Torsional Stress, Thermal Stress	Definition of shear stress, torsional stress, and thermal . stress Calculating different types of stress in engineering elements .	2	27
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures with . illustrations Solve practical . problems	Beams, types of loads, types of beams.	Definition of types of theand beams different types of . loads affecting them Distinguish between types of beams in terms of fixation and . supports	2	28
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures with . illustrations Solve practical . problems	Shear force (SF) & bending moment (BM) of Simple supported beam under an-axial load.	Calculate shear forces and bending moments for simple beams .under axial load diagramsBM andSF .	2	29
Exams . Practical exercises Classroom Participation Assessment	Theoretical lectures with . illustrations Solve practical . problems	Shear force (SF) & bending moment (BM) of Simple supported beam under uniform distributed load.	Calculation of shear forces and bending moments for beams under uniformly . distributed load diagramsBM andSF . accurately	2	30
Curriculum Development Plan (11					
. Updating the curriculum and adding modern applications .1 . Use of interactive and simulation teaching aids .2					

. Increased focus on practical aspects and problem solving .3 . Diversify assessment methods (tests, presentations, reports) .4 . Training teachers on modern teaching methods .5 . Providing additional support to students in difficult subjects .6	
infrastructure (12	
Available	Classrooms, laboratories and workshops
Available	Required textbooks
,ForcesEngineering Statics: Open and Interactive: . Moments, Equilibrium Hibbeler byEngineering Mechanics: Statics & Dynamics . copies availablePDF FreeMeriam & Kraige book also covers the principles ofAndy Ruina & Pratap's .clearlyStatics & Dynamics	**Main References (Sources)**
Penn State Engineering Science & Mechanics guide: NYU Mechanical Engineering Web Resources: Awesome Mechanical Engineering Resources (GitHub Statics Strength. ,Learnmech ,+ Educational Websites ...: Coursera Engineering Toolbox and ,ASME ,Matweb	**Recommended books and references (.scientific journals, reports, etc)**

Course description form

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

1. Educational institution	Hawija -Northern Technical University Technical Institute
2. Scientific department center/	Mechanical technologies/production branch
3. Course name/code	Electrical Technology METP129
4. Available attendance forms	My presence
5. Semester/year	First year / first semester + second semester
6. Number of study hours (total)	36
7. Date this description was prepared	2024-4-4
Course objectives . 8	
Studying the foundations of electricity technology and various electric motors, the theory of their operation, methods of operation, and how to repair and maintain electrical faults.	
Course outcomes and teaching, learning and evaluation methods -9	
itive goalsCogn	
Skills objectives for the course	
Teaching and learning methods	
.Giving lectures theoretically .Show movies .Discussion	
Evaluation methods	
.oral test .A written test	
Emotional and value goals -C .Brainstorming	

.demonstration tools
Teaching and learning methods
.Intellectual questions fee
Evaluation methods
.oral test A written test

Theoretical vocabulary	
the week	Vocabulary details
the basics of electricity -First	
the first	electrical circuit, current intensity of Electrical units and symbols, simple .electromotive force
the second	Potential difference, Ohm's law, methods of connecting resistors (series, parallel, (compound
the third	.Practical examples of solving electrical circuits
(current (variable Second: Alternating	
the fourth	.Methods of obtaining alternating current, types of electrical power plants
Fifth	Sine wave, current waveform with time and frequency, definition of the effective .value of alternating current and voltage
VI	power factors and operations, applications and examples of the use Knowledge of .of alternating current in practical life
Third: Electromagnetism	
Seventh	Magnetic field, field properties, properties of magnetism, types of intensity, field intensity, magnetic materials, definitions (field .(magnetic driving force
VIII	The magnetic effect of electric current. Applications on the use of the property of the magnetic force of attraction
Fourth: Alternating current has three phases	
Ninth	phase alternating current, -current, three phase alternating-Single .phase identification method, external overall wiring system

The tenth	Method of connection in the form of a star(Y) face current and line , ,current from the star, face voltage and line voltage from the star phase system, method of connecting -power in the case of a three .electrical loads
eleventh	Delta (Δ) connection method, face current and line current in the case of delta, face voltage and line voltage, power, applications and .connection examples of star and delta Fifth: Electrical transformers .Sixth: AC motors have three phases
twelveth	.phase induction motors, their types, and uses-Types of motors, three
Thirteenth	phase), principle of rotary magnet -Installation of impact motors (tri .ple of motor operation theorytheory, princi
fourteenth	.phase induction motors-Methods of starting movement in three
Fifteenth	phase -Methods of control and control in changing the speed of three induction motors (changing poles, changing source voltage, changing (oscillation, changing direction of rotation

Practical vocabulary	
the week	**Vocabulary details**
the first	.Learn about the laboratory, power sources, and electrical devices
the second	Study of the ohmmeter(AVO) current, and how to use it to measure electric .potential difference and resistance
the third	.Recognizing the terminology of the color resistance system
the fourth	.Realizing Ohm's law in practice
Fifth	Connect the resistors in series and parallel in the electrical circuit and find the .equivalent resistance for the measurement
VI	Different electrical circuits (series, parallel) and studying their properties, finding .the equivalent resistance
Seventh	.Study the effect of high temperature on resistance
VIII	different specific resistance, types of conductive Determine the value of .materials
Ninth	Connect the electrical circuit in the form of star(Y) and delta (Δ).

The tenth	.Measuring electrical power from direct current circuits
eleventh	.alternating current circuits phase-Measuring power in three
twelveth	Using an electric iron and training on welding methods and making electrical .connections
Thirteenth	Training in establishing an electrician and doing exercises to establish a light .electrical circuit bulb and a switch in a simple
fourteenth	Create an inspection and operation panel that contains a socket and a series lamp, .a socket and a parallel lamp
Fifteenth	.Establishing a lamp in two ways

11- Infrastructure	
1 books The required prescribed -	
By – Theraga Electrical Technology -1 2- Electrical TechnologyBy – Hughes 3- Electrical Technology By – Erick	2 (Main references (sources -

Course description form

The crimes of the Baath regime in Iraq

Course description

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

1. Educational institution	Hawija -Northern Technical University Technical Institute
2. department Scientific center/	Mechanical technology/production branch
3. Course name/code	The crimes of the Baath regime in Iraq
4. Available attendance forms	My presence
5. Semester/year	first semester /Second year
6. Number of study hours (total)	30
7. Date this description was prepared	2024-4-4
8. Course objectives	
To identify and learn about a group of crimes committed by the defunct and dissolved Baath Party against the Iraqi people and their various components, and to establish and awareness among students to reject all forms of injustice and tyranny of these regimes .to demand all civil and political rights	

9. outcomes and teaching, learning and evaluation methods Course

objectives Cognitive -A

1- Introducing the student to the crimes committed by the Baath regime that fall within international issues
2- Introducing the student to the most prominent violations of Iraqi laws
3- Explaining the seriousness of environmental crimes such as burning orchards and draining marshes

.the course of objectives skills The - B

General culture for the student about the recent past of Iraq

Teaching and learning methods

- ✓ The teacher prepares lectures on the subject in electronic form and .presents them to the students
- ✓ .The teacher delivers lectures in detail
- ✓ Recital methods and lectures
- ✓ Dialogical methods
- ✓ Use of projectors

Evaluation methods

1- Daily discussion to determine the students' understanding of the material and evaluate (daily post) .the daily contributions 2- Daily exams with various short scientific questions to understand the extent of their .of the material understanding 3-) . Daily exams (kozat) and monthly exams for the curriculum and the final exam ((final exams (end of semester + Monthly exams
Emotional and value goals -C Urging the student to understand the purpose of studying the subject in -C1 .general .Urging the student to think about learning historical and legal culture -2 C
Teaching and learning methods
1- Giving lectures 2- Discussions 3- (Using modern means (calculators and the Internet
Evaluation methods
learning-E -1 -2 Cooperative or group education Brainstorming- 3 and ,Explanation and clarification through the use of pictures, diagrams - 4 videos Use the data show to display the lecture -5

the week	Name of the unit/topic
1	Crimes of the Baath regime according to the Iraqi Supreme Criminal Court Law of 2005
2	The concept of crimes and their types
3	The crimes of the Baath regime are documented in the Supreme Criminal Court law
4	Types of international crimes
5	Decisions issued by the Supreme Criminal Court
6	Psychological and social crimes
7	The psychological and social impact of crimes
8	The Baathist regime's position on religion
9	Violations of Iraqi laws
10	Pictures of human rights violations and crimes of power

11	Environmental crimes of the Baath regime in Iraq
12	Militarization of society
13	Mass grave crimes
14	The most prominent violations of the Baathist regime in Iraq
15	2003-Chronological classification of genocide graves in Iraq for the period 1963

10. Infrastructure	
(Book of crimes of the Baath regime in Iraq (systematic	Required prescribed books -1
Providing specialists in the field	Laboratories and equipment -2

11. Course development plan
The course is always updated within the permitted percentage and by comparing the curriculum with prestigious international universities with a high international ranking