Ministry of Higher Education and Scientific Research

Scientific Supervision and Evaluation Department

Quality Assurance and Academic Accreditation Department

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

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
Nothing

6- Structure The program

Required ratios	ratios% = Total units for the)/ the total requirement (Total for graduation× 100	The total	Optional	Compulsory	Requirement type
% (15 – 10)	(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 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
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 Name in English	Requirement Type
—	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

CamScanner الممسوحة ضوئيا بـ

Mechanical Technology Department / Production Branch / Second 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 Name in English	Requirement Type
—	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

CamScanner الممسوحة ضوئيا بـ

Academic Program Specification Form for The Academic Year 2024 -2025

University : North Technical University

College/Institute: Technical Institute/Hawija

Department: Mechanical techniques

Data of Form Completion: 2025/1/27

Signature

Department Head Name: Assistant Letcher Sarah B. Ezzat

Signature

Deans Assistant for scientific Affairs Name : Dr. Mohammed Chyad Liejy

Signature

Check the file before

Quality Assurance and University Performance Division:

Assistant Letcher Hamza Omer Sadiq

Signature

Deans Name: Omer K. Ahmed

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 /
. Course name/code3	
. Forms of attendance available4	
. Semester/year5	
. Number of hours of study (total)6	
. Date this description was prepared7	
. aims of the course8	

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

Course description form

Arabic Language

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 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. department Scientific center/	Mechanical technologies/production branch
3. Course name/code	Arabic Language NTU103
4. attendance Available forms	My presence
5. Semester/year	first semester / year First
6. Number of study hours (total)	30
7. Date this description was prepared	2024-28-3
8. Course objectives	
official Teach the student knowledge of the rules of the Arabic language and how to conduct correspondence and correspondence between official institutions	

9. outcomes and teaching, learning and evaluation methods Course

objectives Cognitive -A

1- errors Knowing common linguistic
2- The difference between dha and dha
3- punctuation marks Know the use of
4- discourse Administrative
5- Administrative correspondence

.the course of objectives skills The - B

1- **The art of communication between state departments**
2- correspondence Administrative

Teaching and learning methods

1- **Theoretical lectures**

Evaluation methods

1- **Theoretical test**
2- **Duties**
3- **Reports**

Emotional and value goals -C

confidence-Increasing the student's self -1
Managing time and not wasting it -2
Increase the spirit of competition -3

Teaching and learning methods

1- **Giving lectures**
2- **(Using modern means (calculators and the Internet**

Evaluation methods
1- Theoretical test 2- Duties 3- Reports
other skills related to) General and qualifying transferable skills -D .(employability and personal development 1- correctly administrative correspondence The ability to conduct 2- mistakes Avoid common linguistic 3- Use punctuation marks

the week	Name of the unit/topic
1	the marfu' ta', the long ta', and the open ta' -Introduction to linguistic errors
2	solar and lunar letters -alifs Rules for writing extended and short
3	Dhaad and Dhaa
4	Writing the hamza
5	punctuation marks
6	The noun, the verb, and the difference between them
7	Effects
8	The number
10-9	Applications of common linguistic errors
11	prepositions meanings of -Noun and Tanween
12	Formal aspects of administrative discourse
14-13	The language of administrative discourse
15	Examples of administrative correspondence

10. Infrastructure **1- classrooms**
11. Course development plan **1- Update vocabulary**

Principles of Arabic grammar	**Required prescribed books -1**
Collector of Arabic lessons	**(Main references (sources -2**
Arab Language Magazine	**Recommended books and references (...,scientific journals, reports)**

https://brill.com/view/journals/mrkz/mrkz-overview.xml	**Electronic references, Internet -B ...sites**

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, opportunities demonstrating whether he or she has made the most of the learning .available. It must be linked to the program description

1. Educational institution	**Hawija Technical -Northern Technical University Institute**
2. Scientific department /center	**Mechanical technologies/production branch**
3. Course name/code	**computer principle NTU102**
4. Available attendance forms	**My presence**
5. Semester/year	**first semester / year First**
6. Number of study (total) hours	**24**
7. Date this description was prepared	**2024-4-4**

Course objectives -8

about computer generations, its hardware and software components, Teaching the student theWindows operating system what its features are, how to use it, the programs attached , to it and how to benefit from them, as well as the concept of computer viruses and how to .them deal with

Course outcomes and teaching, learning and evaluation methods -9

Cognitive objectives -A

1- generations Knowledge of computer
2- Windows computer operating system and how to use it
3- disks Knowledge of formatting floppy
4- Knowledge of software use
5- of accessing the Internet Knowledge

Know the concept of computer viruses and how to get rid of them -6

.The skills objectives of the course -B

1- Gain the skill of using theWimdos operating system
2- Skill in using auxiliary programs such asmedia player and scientific calculator calculater

3- Gain the skill of using applications such as programming languages 4- The skill of accessing the Internet and knowing its advantages The skill of eliminating viruses that may infect the computer -5
methods Teaching and learning
. theoretically Giving lectures .Show movies .Discussion
Evaluation methods
.oral test .A written test
Emotional and value goals -C **1** .Brainstorming - **2** .demonstration tools -
Teaching and learning methods
.Intellectual questions fee
Evaluation methods
.oral test A written test
Transferable general and qualifying skills) Other skills related to) - D employability and personal development

Chapter One – Theoretical and practical vocabulary	
the week	**Vocabulary details**
the first	:Introduction to computers: their generations, componentshardware andsoftware .(system software and application software)
the second the third the fourth Fifth VI Seventh VIII Ninth The tenth eleventh twelveth	Windows operating system : The concept of the Windows system, its advantages and basic requirements, operating the system, components of the main desktop ,screenthe concept oficons, the method of dealing with mouse activities, the importance and components ofthe Taskbar making use of ,Start to enter programs, the concept of loaded tasks, exiting the system. And turn off the calculator(Shut Down .(The concept of the window for any program and identifying its main * components, dealing with desktop icons such as(My Document; My Computer; Recycle Bin) . Getting to know *My Computer in terms of disks, folders and files, how to deal with formatting floppy disks, copying folders and files, dealing with the trash,

Thirteenth	e trash can provides in this and how to delete and retrieve files through what th .regard
fourteenth	,Take advantage of the Control Panel programs *such as the (Mouse) icon , the screen saver control icon, changing the appearance of the desktop background, and(Program) .in adding and deleting programs
Fifteenth	age of theTaking advant *Run option to execute programs appropriately, as well as switching to the system signal(Ms-Dos) .and dealing with its commands Use entertainment programs such as*(Window Media Player) .to play movies Use of additional programs*such as thecalculator . Dealing with the drawing program*(Paint) to create, save, and retrieve drawings .through the commands it provides Dealing with the Notes window*(Notepad; WordPad) in writing, saving, .and formatting retrieving, printing texts, and changing their printing style Learn how to get help *and .its different methods

Infrastructure **1- classrooms** **2- Computer lab**	
Course development plan **1- Update the methodological book** **2- Developing the laboratory and increasing scientific vocabulary**	
Computer principles for beginners	**Required prescribed -1 books**
shelf software-the-Computer and off	**Main references -2 (sources)**
http://iajet.org/	**Recommended books and references (scientific (...,journals, reports**
https://isindexing.com/isi/journaldetails.php?id=8735	**Electronic references, -B ...Internet sites**

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

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 .be linked to the program description available. It must

1. Educational institution	**Hawija -Northern Technical University Technical Institute**
2. department Scientific center/	**Mechanical technologies/production branch**
3. Course name/code	**Engineering drawing METP126**
4. Available attendance forms	**My presence**
5. Semester/year	**second semester + first semester / year First**
6. Number of study hours (total)	**72**
7. Date this description was prepared	**2024-4-4**
Course objectives . 8	
its Introducing the student to the importance of engineering drawing and subjects engineering relationship to other	
Course outcomes and teaching, learning and evaluation methods -9	
drawing Developing and improving the student's mental and motor abilities in -A of simple and complex shapes and expanding the horizons of his imagination geometric shapes and assemblies to learn about their components, parts, mechanics .and working principle	
.The skills objectives of the course -B thought to develop a specific and sequential strategy for Organizing the student's drawing, assembling and disassembling geometric shapes and parts of machines and equipment	
Teaching and learning methods	
. theoretically Giving lectures .Show movies .Discussion	
thodsEvaluation me	
.oral test	

.A written test
Emotional and value goals -C .Brainstorming .demonstration tools
Teaching and learning methods
drawing , Intellectual questions
Evaluation methods
.oral test A written test

One Chapter -vocabulary Theoretical	
Vocabulary details	**the week**
The importance of engineering drawing, the importance of using a computer to implement engineering drawing, standard drawing board sizes, .an overview of the AutoCAD program	the first
Preparing for computer drawingTitle Block	the second
Drawing geometric shapes using the computer	the third
Graphic modifications, computer drawing aids	Fourth and fifth
setting Types of lines for engineering drawing, engineering operations, and .dimensions	Sixth, seventh and eighth
Perspective drawing, a perspective drawing that contains a circle .represented by an oval	Ninth
.Projection theory, drawing simplified projections	The tenth and eleventh
angles, drawing according to the theory of the first Main projections, even even angle of projection, drawing according to the theory of the third even .angle of projection	The second, third, fourth and fifteenth

Chapter Two -vocabulary Theoretical	
Vocabulary details	**the week**
three main projections at even angles and note Draw the .the difference between them	The first and second week
.Deducing the third projection from the two projections	The third and a quarter week
.Inferring perspective from two or three projections	The fifth and sixth week

Cutting theory, cutting shapes and lines according to the .type of material, drawing cut sections	and The seventh eighth weeks
Drawing projections cut from one specific projection	The ninth and tenth weeks
drawing Partially cropped project	The eleventh and twelfth weeks
.cut projection, drawing winding sections-Drawing a half	The third, fourteenth and fifteenth week

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, opportunities demonstrating whether he or she has made the most of the learning .available. It must be linked to the program description

1. Educational institution	**Hawija -Northern Technical University Technical Institute**
2.department Scientific center/	**Mechanical technologies/production branch**
3. Course name/code	**Engineering Mechanics METP102**
4. Available attendance forms	**My presence**
5. Semester/year	**semester second + first semester/ year First**
6. Number of study hours (total)	**90**
7. Date this description was prepared	**2024-4-4**

Established objectives

1. students to the principles and fundamentals of engineering mechanics Introducing
2. Learn about different methods for performing calculations related to forces and their effects .dimensional systems-on two and three
3. other topics for the later to oductionExplain that the topic represents a very important intr stages of study

Study the student and build a scientific base for the student to ensure that he can understand the .relevant materials in the later stages

Course outcomes and teaching, learning and evaluation methods

Cognitive objectives -A

.The student will be able to analyze forces and their dependencies for any engineering system

The student gains the ability to link curriculum topics and their relationship to the design of rmechanical parts in a simplified manne

.specific skills objectives-Course

1- .Build a theoretical background through explanations, examples, questions and answers
2- .Discussion and giving students the opportunity to express their opinions in solving problems
3- .ncourage them to ask questions and answersProvide students with exercises and e

Providing students with home exercises accompanied by a discussion of errors and weaknesses

Teaching and learning methods

.Giving lectures theoretically

.Show movies

.Discussion

Evaluation methods
.oral test .A written test
Emotional and value goals -C 1 .Brainstorming - 2 .demonstration tools -
Teaching and learning methods
.Intellectual questions fee
Evaluation methods
.oral test A written test
Other skills related to employability and personal (General and qualifying transferable skills) -D development

Theoretical Subjects – First semester	
Week No.	Subject Topics
1	Static, fundamental concepts, Force, Scalars and, Vectors, Units, Force polygon, Cartesian Compouents .
2	Analysis of Forces
3	Resultant of Concrrent , Coplanar Force system (2-D)
4	Moments
5	Couples, transformation of the Couple and the force
6	Resultant of non -Concurrent, Coplanar force system (3-D).
7	Equilibrium, free body diagram (FBD)
8	Equilibrium Conditions (2-D)
9	Equilibrium Conditions (3-D)
10	Friction, Dry Friction
11	Center of Gravity, Centroid (length, area), Centroid of Simple area
Week No.	Subject Topics – second semester
1	Centroids of Composite areas.

2	Moment of inertia (Simple and Composite areas).
3	2-Dynamics type of motion, Linear motion with constant speed.
4	Linear motion with constant acceleration.
5	Newton's Second Law
6	Curvilinear motion
7	Angular motion, Relative Motion.
8	Work, Energy, Power
9	3-Strength of material: Fundamental concept, Loads, Stress, Strain, Elasticity, Plasticity, Deformation.
10	Hook's Law, Stress -strain curve, type of stress.
11	Normal stress due to an axial load on 1- Uniform cross section area 2- Variable cross section area.
12	Shear Stress, Torsional Stress, Thermal Stress
13	Beams, types of loads, types of beams.
14	Shear force (SF) & bending moment (BM) of Simple supported beam under an axial load.
15	Shear force (SF) & bending moment (BM) of Simple supported beam under uniform distributed load .

Week No.	Pra.Subject – first semester
1	Define the laboratory & the method of writing reports .
2	Problem Solving, conversion of units product of a scale and vector.
3	Force resolution, Find the result of (2-D) by graphical method.
4	Computing the result of (2-D)by Analytical method.
5	Discussion.
6	Moment's, Couple's, Applications

7	Computing the results of (3-D) problems .
8	Equilibrium test, types of supports condition of equilibrium.
9	Tests and Discussion.
10	Friction tests.
11&12	Finding the centroid of different shapes 1- simple 2- Composite
13	Finding the moment of inertia of different shapes 1- Simple 2- Composite
14	Application of straight motion.
15	Application of Newton's second law.
Week No.	Pra.Subject – Second semester
1	Measurement of velocity & acceleration for different cases.
2	Examples of curvilinear, angular, relative motion.
3	Work, test, evaluate the work and power.
4	Discussion
5	Torsion test
6	Compression test
7	Torsion test
8	Shear test
9	Impact test
10	Discussion
11	Hardness test by Rockwell & Brinel Methods.
12	Vickers Hardness test.
13	Bending tests .
14	Beam tests .
15	Practical exam.

	Infrastructure
1 The required prescribed books -	
1-Static & dynamics Bed ford & fowler **th4** ed 2005 Higdon & Stiles 2-Engineer ing Machine 3 th ed 1968 Singh, 3-Sadhu Strength of Martial 4th ed 2007 9th 4- Engineering Mechanics by singer	**2** Main references - (sources)

Course description form

studied in order to help the student write and understand topics and be English language must for how to write research ideas skills related to the engineering field, in addition to developing and presentations.

1. institution Educational	**Hawija -Northern Technical University Technical Institute**
2. Scientific department/center	**Mechanical technologies/production branch**
3. Course name/code	**English language1**
4. Available attendance forms	**My presence**
5. Semester/year	**semester First year/second**
6. Number of study hours (total)	**30**
7. Date this description was prepared	**2024-4-4**

Objectives of the course -8

objectives Cognitive -A

- Learn how to talk to people
- Developing the skill of scientific knowledge of engineering topics
- in using methods to prevent the theft of intellectual rights Developing skills
- Actual participation in class and interaction with students.

-:Course outcomes and teaching, learning and evaluation methods -9

Cognitive objectives -A

English Teaching simple conversation in -A1
Using English grammar -A2
Using English meanings and vocabulary -A3

.The skills objectives of the course -B

Mastering the use of English grammar -B1
Mastering the use of Arabic vocabulary in English -B2

Teaching and learning methods

.1Discussion and dialogue in presenting the topic
.2Using modern illustrative methods such as data shows to clarify the important points of the lesson

.3Preparing monthly and annual research and articles to clarify scientific material .4material in a simplified manner and using modern technology in education Explaining the .5Raising questions and extracting answers from them .6Emphasis on the research and conclusion method .7ls to reach the goal and Linking the scientific material with relevant external scientific materia purpose of the lesson
Evaluation methods
Weekly, monthly and quarterly exams Preparing discussion circles within the class to discuss the lesson material to overcome the difficulties faced by some students during the application phase Testing students
Emotional and value goals -C confidence-Deepening the student's self -C1 Creating a creative teacher who loves the teaching profession -C2 needs Providing the student with all the books, sources and external information he - **C3** Deepening the love of the English language and practicing it -C4
Teaching and learning methods
Discussion and dialogue in raising the topic .2Using modern illustrative methods such as data shows to clarify the important points of the lesson .3Preparing monthly and annual research and articles to clarify scientific material .4Explaining the material in a simplified manner and using modern technology in education .5Raising questions and extracting answers from them .6h and conclusion methodEmphasis on the researc .7Linking the scientific material with relevant external scientific materials to reach the goal and purpose of the lesson
Evaluation methods
Weekly, monthly and quarterly exams discuss the lesson material to overcome the Preparing discussion circles within the class to difficulties faced by some students Testing students during the application phase
Transferable general and qualifying skills (other skills related to employability and -D .(personal development Providing the student with all the books, sources, and external information he needs -D1 Conduct workshops inside the hall -D2 Using modern technology to discuss scientific material to make it more clear because it is -D3 one of the modern methods of education

Vocabulary Curriculum	
the week	**topic The**
1	**The Sentence**

2	Tenses
3	Tenses+ Quiz
4	articles
5	demonstratives
6	How to translate the Sentence into English text?
7	Arabic text translation +Quiz
8	First monthly test
9	Passive voice and active voice
10	Question–tags +interrogative
11	Passage and questions
12	Parts of speech
13	Appropriate academic writing
and 15 14	What qualification dose the student needs to write a good paragraph? +Quiz

10. Infrastructure
:Required textbooks -1new headway plus for beginners
- :(Main references (sources -2John Soars 2012
: (...,scientific journals, reports) Recommended books and referencesOxford Modern English Grammar

:Electronic references, Internet sites -B

http://owl.english.purdue.edu/handouts/grammar

- http://www.teachingenglish.org.uk/
- http://englishplus.com/grammar/contents.htm
- http://www.englishclub.com/grammar/index.htm
- www.learnenglish.de/basics
- www.agendaweb.org

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 .be linked to the program description available. It must

1. Educational institution	**Hawija Technical -Northern Technical University Institute**
2. Scientific department /center	**Mechanical technologies/production branch**
3. Course name/code	**Human rights are the father of democracy NTU100**
4. Available attendance forms	**My presence**
5. Semester/year	**First year**
6. Number of study (hours (total	**30**
7. Date this description was prepared	**2024-4-4**
8. Course objectives	
.duties towards society Introducing students to human rights and -1 Following up on the historical roots of knowledge of human rights and the stages of their -2 .development throughout the ages .Consolidating the concepts of right, freedom, and duties on the individual and society -3 the constitutional articles in the Iraqi constitution that relate to human Explaining -4 .rights and explaining them to students Highlighting the importance of knowing the individual's rights in performing his duties -5 .to the fullest extent .democracy and knowing its many forms Shedding light on -6	
Course outcomes and teaching, learning and evaluation methods -8	
The cognitive goals Students benefit from knowing the types of rights and the scope of their application. -A1 Explaining the historical stages of human rights and the extent of their development. -A2 Knowing the concept of freedoms and democracy correctly -A3.	

Providing the student with the moral values that require adherence to and -A4 tant rights and duties entrusted to the individualclarifying the most impor. Identifying the rights and duties of the Iraqi individual -a5
.The skills objectives of the course - B 1- .Introducing the history of human rights and the stages of development 2- .nurturing students from the Islamic side Spreading culture and 3- How to preserve society and the country by strengthening the country's love for .them 4- Identify the most important rights granted to them in accordance with .international norms and laws .students Promoting citizenship among -5
Teaching and learning methods
1-Relying on evidence and concrete, realistic examples of human rights and the concept of democracy that reflect the nature of society and the environment that .embraces the individual 2- of scientific thinking, analysis, and Teaching students the mechanism .deduction 3-.Motivating students to find realistic problems and solve them scientifically 4- .Brainstorming gave students an opportunity to present and discuss their ideas 5-.Lectures 6-Intellectual questions and discussions
Evaluation methods
1- Written exams. 2- Daily exams and surprises. 3-The student's sense of the extent of the students' understanding of the prescribed material. 4- Oral questions. 5- Trying to apply human rights and the concept of democracy to contemporary .reality
Emotional and value goals -C **1** .Brainstorming - **2** .demonstration tools -
Teaching and learning methods
.Intellectual questions fee
Evaluation methods
.oral test A written test
skills related to Transferable general and qualifying skills) Other) -D

employability and personal development

Theoretical vocabulary	
the week	Vocabulary details
the first	Human rights: their concept and goals
the second	Human -Human rights in Greek civilization C -Mesopotamian civilization B -A in Roman civilization rights
the third	The -The Christian religion 2 -The position of divine laws on human rights: 1 Islamic religion
the fourth	The concept of administrative and financial corruption
Fifth	Types of corruption in terms of size
VI	corruption in terms of spread Types of
Seventh	Impact of corruption
VIII	International organization and bodies working on human rights The Economic and Social -The General Assembly B -issues A Council
Ninth	on The United Nations, human rights, and agencies working human rights issues
The tenth	Democracy: its definition
eleventh	First: Democracy as a form of government
twelveth	.Second: Democracy as a pattern of human relations
Thirteenth	Liberalism / political democracy / its characteristics
fourteenth	Application of political democracy
Fifteenth	social democracy, -social democracy , characteristics of economic - .social democracy-the role of the state in implementing economic

Infrastructure .10	
(Binding (human rights	1- Required prescribed books
	2- (references (sources Main
1- Human Rights and Democracy, Professor Ali Aboudi Nehme	Recommended books and -A references

	(...,Scientific journals, reports)
	Electronic references, with -B the Internet

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, opportunities demonstrating whether he or she has made the most of the learning .available. It must be linked to the program description

Educational institution	**Hawija Technical Institute -Northern Technical University**
Scientific department center/	**Mechanical technologies/production branch**
Course name/code	**Manufacturing processes METP212**
Available attendance forms	**My presence**
Semester/year	**First year / first semester + second semester**
Number of study hours (total)	**90**
Date this description was prepared	**2024-4-4**

Course objectives

intermediate cadre capable of working in the fields of manufacturing and Graduating an
: production to contribute to the following work
The ability to analyze processes into operating components .1
.2 Numbers of technological path between production units
.3 operation cards and orders for each unit and each machine, and calculating the Preparing operating time and loading programs for the units
.4 Determine the elements of control and quality control
.5 Conduct preliminary calculations of operating costs.

e outcomes and teaching, learning and evaluation methodsCours

Cognitive objectives -A
1 .Learn about metal production processes and their types -
2 .Learn about metal formation and formation theory-
3 .Identify methods of manufacturing metals -

.objectives of the course The skills -B
.Ability to work in the areas of manufacturing and production
.The ability to work on a group for the purpose of completing the work

Teaching and learning methods

. Giving lectures theoretically
.Show movies
.Discussion

Evaluation methods

.oral test

.A written test
Emotional and value goals -C **1** .Brainstorming - **2** .demonstration tools -
Teaching and learning methods
.Intellectual questions fee
Evaluation methods
.oral test A written test
general and qualifying skills) Other skills related to employability and Transferable) -D personal development

Theoretical vocabulary, first chapter	
The first week	Definition of measurement and units of measurement, error and its causes, methods of .conveyor measuring devices measuring main dimensions, simple
second week	.Measuring feet (probes), their parts, uses, and types
the third week	.Micrometers, their types, uses, parts, and the idea of how a micrometer works
fourth week	.use them Measuring molds and their uses, types, and how to
The fifth week	Measuring angles and side shapes, tools for measuring angles and measuring cups .dibs) and their types)
the sixth week	Method of measuring screw elements, external and internal diameters, measuring step .electronic mechanical comparison devices ,and step diameter
The seventh week	Optical device, some modern measurement methods (acoustic frequency measuring (devices, digital optical
The eighth week	tools used and Files and their role in industrial development, the process of slicing, the the processes involved in the filing process, files used and their specifications, machines and their types and methods of attaching crafts to them, uses of files, and .how to clean files
The ninth week	hat must be met in the sawing process, the saw Cutting with a saw, the conditions t weapon, the crowns and their types, the teeth, the method of sharpening and maintaining them, the types of manual hammer heads and the method of installing .them
The tenth week	drills, types of primers, types of primers, how to Drilling and grinding, types of .perform the drilling and grinding process
The eleventh week	Models, their types, wood used in their manufacture, and the conditions that must be .met in the model
The twelfth week	in making the model, box molds, and how to design a simple Tools and devices used .model

thirteenth The week	Plumbing, historical overview, main methods of plumbing (cast casting, sand casting, .metal mold casting, other methods of plumbing) Advantages of the plumbing process
The fourteenth week	Plumbing sand, plumbing sand specifications, components, plumbing sand, devices .used and additives to plumbing sand
The fifteenth week	Dumps and tools used in preparing sand molds, the process of molding a simple and .parasitic molds and the model molds used final model, the
Theoretical vocabulary, second semester	
The first week	Pulp, its types, pulp sand, mixture ratios and materials added to it, stages of its work benefit of the drying process, mixing and preparing sand, making balls, drying it), the) .ovens or methods of drying balls and their equipment
second week	.Casting with metal molds, its types, centrifugal casting, and its types
week the third	.Lost wax plumbing, continuous plumbing, shell plumbing
fourth week	.Measuring molds and their uses, types, and how to use them
The fifth week	Metal smelting and its foundations, types of smelting furnaces, blast furnace, main dimensions and method of operation, blast furnace, electric arc furnace, reflector .rotary furnace ,furnace
the sixth week	Casting of castings, its equipment and foundations, cleaning of castings, casting .defects, inspection of castings
The seventh week	Welding, foundations of metal welding, clarification of the main methods of welding welding, electric arc fusion welding, other methods of fusion welding, flash pressure) .welding and caustic welding), types of welding joints
The eighth week	Hot pressure welding, including (electrical resistance welding, including spot and line welding), cold pressure welding, pressure welding using explosives, and welding, flash .pressure welding using ultrasonic waves
The ninth week	acetylene welding, -hydrogen welding and oxy -Fusion welding and gas welding, oxy .acetylene-hand welding, cutting with oxy-thand welding and lef-types of flame, right
The tenth week	Arc welding, welding current, direct and reverse polarity method, types of electrodes, .packaging of metal electrodes and their types
The eleventh week	electrodes and the welding area, electric arc Electrode movement, methods of isolating welding using protective gases (carbon dioxide welding, arcon tig welding, brazing (welding
The twelfth week	.Atomic hydrogen arc welding, arc welding, fusion welding
The thirteenth week	caustic welding (mortar welding, plumbing welding) and some ,Temperature welding .(modern types of welding (laser welding, electron beam welding
The fourteenth week	.Welding defects, welding tests

The fifteenth week	cold and hot forging, Metal forming, the theory of forming, the foundations of blacksmithing, the foundations of blacksmithing and its methods (manual, mechanical), .blacksmithing equipment, manual and mechanical, blacksmithing elements

Practical vocabulary, first semester	
The first week	student to the various measuring tools and devices in the laboratory, Introducing the the precautions that must be followed when working to maintain them, and the .conditions that must be met in measurement laboratories
second week	learning about the types of feet in terms of accuracy, ,Measurement using a vernier foot use and range of measurement, how to measure using vernier feet, measuring for .different models
the third week	Measurement using micrometers, learning about the types of micrometers in terms of accuracy, use and field of measurement, measuring using micrometers of different .models
fourth week	Measuring templates, learning about the different groups of measuring templates, how accuracy of a to assemble them to obtain a specific dimension, how to check the .micrometer using measuring templates
The fifth week	Comparing devices: Identify the different comparison devices (mechanical, electronic, .and optical) with different measuring parts on each of them
the sixth week	identifying the devices and tools used to measure angles, using them ,Measuring angles .to make various measurements of specific angles
The seventh week	Projector device, identifying the parts of the device and their uses, identifying the parts using the device with a longitudinal dimension scale, ,of the device and their uses measuring angles for different models
The eighth week	Measuring tubes: Identifying the different measuring tubes and using them to make .measurements
The ninth week	identifying the devices and tools used, measuring parts for ,(Measuring screws (threads (the various screw elements (outer diameter, inner diameter, step diameter, tooth pitch
The tenth week	Use various previous measurement tools to make measurements to distance themselves .a comparison of the results and make
The eleventh week	Learn about sand laboratory equipment, standard sand sample conditions, and using a standard sand sample preparation device to prepare different samples (tests, pressure, .(tension, bending
The twelfth week	.(Measuring the moisture content in sand (drying method, chemical reaction method
teenth The thir week	Testing the degree of permeability of plumbing sand and comparing the results .calculated by experiment with the results calculated from the tables

The fourteenth week	.Testing the proportion of binder (clay) with sand
The fifteenth week	Testing the degree of fineness in relation to the size of the sand grain, calculating the .fineness number
Practical vocabulary, Chapter Two	
The first week	sand grains for the shape of the grain: Enlarging and examining the shapes of Testing .the grains and calculating the proportion of each shape
second week	Sand durability tests for stress loading. Resistance of sand (green and dry) to pressure .and shear
the third week	.Testing the tensile and bending resistance of sand
fourth week	.Sand impact resistance test
The fifth week	Testing the effect of adding other additives on the specifications of plumbing sand and .of permeability and the additives finding the relationship between the degree
the sixth week	Identifying the different types of welding and welding devices, training in welding .some artifacts
The seventh week	Welding line tests (external examinations) Checking the width and height of the .line in terms of the shape and consistency of the weld welding Matching the welding joint with its specified measurements using special measuring .dyes .Detection of nicks, pits, pores and cracks - .The welding line runs to the opposite side -
The eighth week	penetration of liquids and gases (using -Testing the tightness of welded joints .(kerosene, using water or air pressure
The ninth week	.(Mechanical durability tests (tensile, bending, shock tests
The tenth week	joint (making a section through the weld joint Testing for internal defects in the weld .(and examining the section Testing internal defects using one of the other available methods or observing them .during scientific visits
and twelfth weeks	of making them, the materials Identifying the number of models produced, the method from which they are made, and the machines used in making the model. Making a .simple model and a simple core box
thirteenth , fourteenth , and fifteenth weeks	Identifying the types of drills, the number of tools used, the technical principles in the illing operations and the types of holes, practical integrated exercises in terms of dr .drilling, reamer and drilling

Infrastructure	
1 The required prescribed books -	
1- .Engineering principles of metals and materials Dr. Hussein Baqir, may God - Q. Bailey, translation .have mercy on him 2- Engineering metallurgy) Applied physical metallurgy) George Yacoub, Reda -a. Hickens, translation Muhammad Ali 3- .Metals: their structure, properties and thermal coefficients Dr.. C. Degerol. a . Olyman Haidari, Adnan -Dr. Jaafar Taher Al –lation Trans .Nehme 4- .Engineering materials and their tests Khazraji, Adel Mahmoud Hassan, -Dr.. Qahtan Khalaf Al Sharif-Jawad Muhammad Al-Abdel 5- .Properties of engineering materials Saleh, Dr. Dr.. Sabah Amin Karakji, Dr. Walid Muhammad .Sharif-Talib Hussein Al 6- .Mineral physics .Dr.. Abdul Razzaq Ismail Khudair 1- :English sources 1 - Basic Engineering Metallurgy Theories Principles and application Aarkeyser Keyser 2- introduction to structures and metals, vsivarajan 3- 3-Introduction to physical metallurgy, Avnet.	**2** Main -) references (sources

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, opportunities demonstrating whether he or she has made the most of the learning .available. It must be linked to the program description

1. Educational institution	**Hawija -Northern Technical University Technical Institute**
2. department Scientific center/	**Mechanical technologies/production branch**
3. Course name/code	**Material properties METP124**
4. Available attendance forms	**My presence**
5. Semester/year	**second semester + first semester / year First**
6. Number of study hours (total)	**48**
7. Date this description was prepared	**2024-4-4**
Course objectives . 8	
properties of engineering materials, which are the language or phrases Identify the by which the designer explains his needs for the material that will resist loads, .breakage, disintegration, chemical reactions, radiation, and heat s for comparing the regularity of different Properties are also useful as a basi samples of the same material. It is noted that there are no Two pieces of the same material have exactly the same properties with the utmost during precision. This is due to many factors to which the material is exposed manufacturing, or as a result of shaping processes, or to time factors, or to changes .in temperature or humidity, or to other factors	
Course outcomes and teaching, learning and evaluation methods -9	
Cognitive objectives -A es of materials that determine how they behave under various Properti Recognition .conditions, such as stress, strain, temperature, and other environmental factors This knowledge helps graduates improve the performance of their designs, reduce .environmental impact of their work material waste, and reduce the	
.The skills objectives of the course -B	

.Ability to work in the areas of manufacturing and production .The ability to work on a group for the purpose of completing the work
Teaching and learning methods
. theoretically Giving lectures .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
methods Evaluation
.oral test A written test

Theoretical vocabulary, first chapter

the week	Vocabulary curriculum
1	.Definition of engineering materials
2	.Atom, element, types of bonds in engineering materials
3	.Crystalline and amorphous materials
4	Crystalline forms(HCP)(FCC)(BCC) .
5	.Mechanical properties of materials .(strain curve, ductility, collapse-Stress, strain, stress)
6	.Hardness, hardness test
7	supplement
8	.Durability, durability tests

9	.Thermal properties of materials (expansion, thermal conductivity thermal)
10	Electrical properties of materials (ionic materials, insulating materials, metallic materials, factors .(affecting conductivity
11	Magnetic properties of materials diamagnetic materials, magnetic retardation, ,Ferromagnetic materials, paramagnetic materials) .(factors affecting magnetism
12	Chemical properties of materials (Corrosion, electrochemical series, oxidation)
13	.Iron, its most important ores, extraction, blast furnace, transformers
14	.most important types, properties, and uses Carbon steel, its
15	.Alloy steel, its most important types, properties, and uses
Theoretical vocabulary, second semester	
1	.Cast iron, its types, properties, and uses
2	supplement
3	.uses Copper, its alloys, properties, and
4	.Aluminum, its alloys, properties, and uses
5	.Nickel, its alloys, properties, and uses
6	.Tin, its alloys, properties, and uses. Zinc, its alloys, properties, and uses .Manganese, its alloys, properties, and uses
7	(white metals, bearing alloys) Other nonferrous alloys
8	Powder metallurgy Methods of obtaining metal powders, mechanical methods, physical and chemical methods,) .natural, mechanical and chemical properties of powders
9	.Powder pressing, sintering process
10	Ceramic materials
11	.Glass, its types, manufacture, and uses
12	.Concrete, its industrial uses
13	.Polymers, polymer molecules, types of polymer

14	.Properties and uses of plastics
15	.Plastics supplement

Infrastructure	
1 The required prescribed books -	
s. Bailey, , Engineering principles of metals and materials .Dr. Hussein Baqir, may God have mercy on him -translation Engineering Metallurgy) Applied Physical Metallurgy , A.) George Yacoub, Reda Muhammad Ali -Hickens, translation re, properties and thermal coefficients , Dr. C. Metals: their structu Haidari, -Dr. Jaafar Taher Al -Degerol. a . Uliman translation .Adnan Nehme -Engineering materials and their tests , Dr. Qahtan Khalaf Al -Jawad Muhammad Al-Khazraji, Adel Mahmoud Hassan, Abdel Sharif es of engineering materials , Dr. Sabah Amin Karakji, Dr. Properti .Sharif-Walid Muhammad Saleh, Dr. Talib Hussein Al .Mineral Physics , Dr. Abdul Razzaq Ismail Khudair :English sources 8- 1-Basic Engineering Metallurgy Theories Principles and application Aarkeyser Keyser introduction to structures and metals, v Engineering Mechanics by -2 singer	2 Main references (- (sources

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, opportunities demonstrating whether he or she has made the most of the learning .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	**Mathematics**
4. Available attendance forms	**My presence**
5. Semester/year	**First year/first semester + second semester**
6. (Number of study hours (total	**48**
7. Date this description was prepared	**2024-4-4**

8-Course objectives

prescribed topics and Acquire the mathematical knowledge necessary for the understand the meanings behind each mathematical concept
Develop an understanding of the nature of foundational mathematics as an integrated system of basic mathematical concepts, which will provide a significant ng other mathematical disciplinesbasis for understandi
Apply the steps to solve a mathematical problem by analyzing the problem and developing and implementing a solution plan

Course outcomes and teaching, learning and evaluation methods **.8**

Cognitive objectives -A
.learner to know the types of jobs For the
to recognize vectors be able should
That the learner can know the ways to solve equations
.The learner will be able to solve partial differential equations
objects calculate the area and volume of to The student should be able
.The learner will be able to solve all differential and integral problems

.The skills objectives of the course -B
1 Understanding the meanings of mathematical problems and understanding them - link them to practical reality to physically

ing and learning methodsTeach
. theoretically Giving lectures .Show movies .Discussion
Evaluation methods
.oral test .A written test
Emotional and value goals -C .Brainstorming .demonstration tools
Teaching and learning methods
.questions Intellectual fee
Evaluation methods
.oral test A written test
Transferable general and qualifying skills) Other skills related to) - D employability and personal development

Theoretical vocabulary, first chapter	
The first and second week	properties, solving simultaneous equations Determinants and their .(using the determinant method (Cramer
The third, fourth and fifth weeks	Differentiation, algebra of derivatives, multiple functions
The sixth, seventh and eighth weeks	functions and their Trigonometric, logarithmic, and exponential .derivatives and implicit functions, the chain rule
The ninth, tenth and eleventh weeks	Drawing functions, drawing trigonometric functions and maximum .and minimum limits
The twelfth and thirteenth week	differentiation, velocity and acceleration, Applications of physical .and engineering applications of differentiation
The fourteenth and fifteenth sweek	Integration, laws, and its relationship to differentiation, definite and .indefinite integration
vocabulary , Chapter Two Theoretical	
The first, second, third and fourth weeks	Implicit integration, geometric applications of integration (areas and volumes) and physics

The fifth and sixth weeks	General methods of integration include substitution and partial integration .the use of exponential and logarithmic partial fractions and
The seventh, eighth, ninth and tenth weeks	Discrete, homogeneous and linear differential equations with their various .applications
The eleventh and twelfth weeks	multiplication and calculating angles Vectors (direct and quantitative .between vectors
The third, fourteenth and fifteenth week	Statistics (principles) and probability theory

nfrastructure	
Required prescribed books	
Main references (sources)	**Thomas Calculus 12th edition George B. Thomas.** **Maurice D. Weir.** **Joel R. hass .**

Course description form

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 whether he or she has made the most of the .must be linked to the program description learning opportunities available. It

1. Educational institution	Hawija -Northern Technical University Technical Institute
2. department Scientific center/	Mechanical technologies/production branch
3. Course name/code	Laboratory TIH102
4. Available attendance forms	My presence
5. Semester/year	second semester + first semester / year First
6. Number of study hours (total)	90
7. Date this description was prepared	2024-4-4
8. Course objectives	
filing, welding, plumbing, turning, and carpentry know the work of Teaching the student to	
outcomes and teaching, learning and evaluation methods Course .9	
Cognitive objectives - 1- the student on proper filing work and how to use measuring tools, files, and Training drill cutting with a saw, drill, and 2- Tools, tools and train in the welding workshop on various Teaching the student to inside the workshop devices 3- How to plan on sheet metal, how to cut, assemble and welding process necessary Training the student on various lathe machines and training on the measuring tools	
.the course of objectives skills The - B The filings Lathing Carpentry Welding	
Teaching and learning methods	

Practical lectures
Evaluation methods
Theoretical test **Practical test** **Reports**
Emotional and value goals -C **confidence-Increasing the student's self -1** **Managing time and not wasting it -2** **Increase the spirit of competition -3**
Teaching and learning methods
Giving lectures **(Using modern means (calculators and the Internet** **available And the tools devices Application on**
Evaluation methods
Theoretical test **Practical test** **Reports**
other skills related to employability and) General and qualifying transferable skills -D **.(personal development** **Ability to work in lathe factories** **laboratories Ability to work in welding** **Ability to work in the plumbing profession**
.the course of objectives skills The - B **The filings** **Lathing** **Carpentry** **Welding**

Practical vocabulary - Chapter One	
the week	**Vocabulary details**
the first	**(Model carpentry (3 weeks -** 1 The basic principles of model carpentry, definition of types of wood and their .uses, types of models, their carpentry and their uses in plumbing Correcting the model, the conditions that must be met in correcting the model, ise on executive drawing of simple models with one the shrinkage factor, an exerc .separator term and without a box The equipment used, the hand tools and the mechanical equipment used, the thickening machine, the tray saw, the band saw, the raking machine, the sanding .vertermachine, the con

	Practical training for splicing parts according to the operational drawing on the .marks
the second	Completing the training, finishing the parts of the model, methods of assembling .it, and its final dimensions
the third	explanation of multiple dividing boundaries and internal :Complex models .spaces
the fourth	**Metal Plumbing (6 weeks -2)** Metal casting and its importance, the purpose of using castings in industry, forming a ,contents of the casting unit, industrial safety precautions in casting piece model in front of students, sand for molds and cores, -sand mold for a one their types and sources, properties of additives, mixing processes and controlling .amounts, use of a sand mixer, sand treatment piece model to form a sand -ds for a oneForming sand molds using manual metho .mould
Fifth	piece model with identification of castings and risers, -Sand mold for a one .melting metal and pouring it into a mould, extracting and cleaning the castings
VI	the metal, pouring it into a mold, taking Forming a sand mold as before, melting .out the casting and cleaning it
Seventh	Casting sand molds in a productive manner, training on the use of plumbing plates that contain more than one piece in one mold and with cores, methods of with brushes, files, grinding stones, steel balls, compressed air, cleaning castings rotating machines, reviewing and examining castings, identifying visible defects and their causes, Review the dimensions of the castings, and ensure that they .match the required dimensions
VIII	Casting sand molds for moving and compound models with a core. These exercises are among the exercises that the student will perform to complete their .operation in other laboratories
Ninth	uses, rotary, stirrer, and ,Metal smelting furnaces, their types, characteristics .stationary furnaces
The tenth	**Refrigeration and maintenance (6 weeks -3)** .Industrial development and the role of the refrigerator in it Vernier foot, its types, methods of measuring it, how to make a vernier that reads .ht scale with depths, and the caliperstheheig Shankara process Base surfaces, tools used, display materials, impact fork, justice calipers, chink calipers, tailbone and tailbone, right angle, chink flowers, regular and sensitive ractor and angle measurement, a practical chinks, altimeter, universal prot .exercise that combines chinking operations Files and cold process Types of files and their specifications, components and their types, and methods .of attaching the crafts and their work

eleventh	how to clean files, the process of filing, practice on the hook and ,Uses of files .the simple file Chainsaw cutting Hand saw, saw weapon, installing the saw weapon, conditions that must be met .in sawing, training on the saw cutting process
twelveth	embryogenesis The process of-1 Types of embryos, toothing and maintenance of embryos, types of manual hammer heads, method of installing the hammer head, exercise on the embryo .process The process of drilling and glazing-2 rs, how to perform the drilling Types of drills, types of primers, types of reame and grinding process, training on manual and mechanical drilling and grinding .operations after performing the shredding operations Qalawz-Al-3 Types of screws, internal and external dental tables, training on performing .ferent screwing operationsdif
Thirteenth	.Various training exercises on the previously mentioned filing work
fourteenth	The importance of maintenance for machines and equipment, clarification of prepare periodic and comprehensive maintenance operations, and how to .maintenance reports
Fifteenth	Types of gaskets and sealants, their uses, methods of installing and removing -1 them, and reviewing their operation .Types of valves, methods of operation, inspection and repair-2

Practical vocabulary - Two Chapter	
the week	**Vocabulary details**
the first	**(Welding (6 weeks-4** Occupational safety and security precautions: gas welding, the equipment used and how to install and adjust it, other auxiliary tools and gases used and their specifications, their types and measurements, other auxiliary materials, welding ,welding wires equipment, types of flames and the method of igniting and adjusting the required flame, .artifacts, rinsing and cleaning the edges to be welded
the second	:Practical exercises opposite surfaces, perpendicular surfaces, inclined surfaces, circle welding, Welding longitudinal and transverse cutting
the third	Welding equipment, practical training on using the electric arc to weld various surfaces, .install them, practical training equipment used, electrodes and how to
the fourth	CO2 weldingand gas cutting operations, equipment used and precautions to be taken Performing exercises on welding artifacts usingCO2 gas
Fifth	shielded arc welding-Training in gas(Tig, Mig) .

VI	.Assembly exercises using various cutting and welding processes
Seventh	**(Plumbing and blacksmithing (3 weeks-5** Equipment for cutting and bending billets, rolling machine, grooving machine and hand ster, list and drawing method, tools, using and bending the billet manually, regular thru .simple discretizations, calculating the individual cut and missing actuators
VIII	Training on calculating the individual intersecting works, performing an exercise for two .intersecting cylinders
Ninth	.conic ellipses Singular cones and
The tenth	**(Lathing (6 weeks -** 6 The lathe, its specifications, uses, accessories, installation methods, operating the lathe, .types of lathe pens using each of them
eleventh	:Lathing operations .drill, use of measuring tools Plane lathe, tool, center work, simple step
twelveth	Mapping the external looting in different ways, explaining the laws for each method, and .doing an exercise specifically for the external looting
Thirteenth	e). Doing an exercise that Externally working on the different teeth (the triangl -1 includes the triangle tooth .Make the tooth an outer square and make an exercise -2
fourteenth	.Cutting speeds, selecting them, and using their tables
Fifteenth	.quadrilateral sampling Implementing training on decentralized turning and using

Infrastructure **1- classrooms** **2- Workshop halls** **3- Training devices**	
10. Course development plan **1- vocabulary Update**	
Basics of workshop technology	**Required prescribed books -1**
Production technology and workshop work	**(Main references (sources -2**
c Workshop and production technology	**Recommended books and references (...,scientific journals, reports)**
https://books-world.net/production-technology-and-workshop-work-arabic-book/#download	**Electronic references, Internet - B ...sites**

Course description form

Arabic language 2

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 technologies/production branch**
3. Course name/code	**Arabic language2**
4. Available attendance forms	**My presence**
5. Semester/year	**Second year/second semester**
6. Number of study hours (total)	**30**
7. Date this description was prepared	**2024-4-4**
8. Course objectives	
Definition and introduction to the Arabic language and the stages of its formation, and familiarizing students with the basics and parts of the Arabic language	

9. outcomes and teaching, learning and evaluation methods Course
objectives Cognitive -A 1- Knowledge and understanding 2- techniques Learn correct writing 3- Review previous article 4- Allow room for discussion to determine the extent of understanding
.the course of objectives skills The - B
1- with practice and knowledge questions present to How 2- grabbing way-Explain in an attention 3- Tighten the recipient to ensure no absence 4- Exam after the end of the lecture
Teaching and learning methods
1- Learning-E 2- Cooperative or group education 3- Brainstorming 4- Use the data show to display the lecture
Evaluation methods
1- after each lecture Tests **Monthly exams-2** **Nominate a student to lead the lecture for a short time -3** **Class activity-4**
Emotional and value goals -C To work in a team spirit a1-C To adhere to the ethics of the educational institution a2-C confidence-Giving the student self 3-C Preparation and evaluation 4-C
Teaching and learning methods
1- Giving lectures **2- Discussions** **3- (Using modern means (calculators and the Internet**

Evaluation methods

Short exams-1 Monthly exams-2

10. Infrastructure

The Week	Name of the unit/topic
1	the marfu' ta', the long ta', and the open ta' -Introduction to linguistic errors
2	solar and lunar letters -Rules for writing extended and short alifs
3	Dhaad and Dhaa
4	Writing the hamza
5	punctuation marks
6	The noun, the verb, and the difference between them
7	Effects
8	The number
10-9	Applications of common linguistic errors
11	meanings of prepositions -Noun and Tanween
12	Formal aspects of administrative discourse
14-13	The language of administrative discourse
15	Examples of administrative correspondence

(Required Arabic language (methodological	**Required prescribed books -1**
nothing	**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

Course description form

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	**-Northern Technical University Hawija Technical Institute**
2. Scientific department/center	**Mechanical technologies/production branch**
3. Course name/code	**applications computer**
4. Available attendance forms	**My presence**
5. Semester/year	**Second year/first semester**
6. (Number of study hours (total	**48**
7. Date this description was prepared	**2024-4-4**

8 Course objectives -

) Introducing the student to using the 2D and 3D engineering drawing program**AutoCAD 2D & 3D** .with applications in his field of specialization (

9- Course outcomes and teaching, learning and evaluation methods

Cognitive objectives -A

.objectives of the course The skills -B

Teaching and learning methods

. theoretically Giving lectures

.Show movies

.Discussion

Evaluation methods

.oral test

.A written test

Emotional and value goals -C

.Brainstorming

.demonstration tools

learning methods Teaching and

.Intellectual questions

fee

Evaluation methods

.oral test

A written test
Transferable general and qualifying skills) Other skills related to employability and) - D .personal development

Chapter One – Theoretical and practical vocabulary	
the week	**Vocabulary details**
the first	Introduction to theAutoCAD program Screen settings ,(Snap, Limit, Grid, Pan, Zoom,...)
The second, third and fourth	Draw . menu
Fifth and sixth	List of revisions(modify) .
Seventh	Object Snap . menu
VIII	. Layers
Ninth	. Dimensions
The tenth	,WritingHatching
eleventh	.Store files, import files from other programs, and export them
twelveth	Makingblocks and importing parts from other programs, such as dividing an element with equal distances(Divide) distributing elements along a path ,(Measure) .
Three and fourteen	.Computer drawing applications according to the department's specialty
Fifteenth	.Printing, copying and extracting files on the plotter

second semester - Theoretical and practical vocabulary	
the week	**Vocabulary details**
first	.Principles of drawing in three dimensions
The second, third, fourth and fifth	List of cortical trigramsSurface.
Sixth, seventh and eighth	List ofSolids .
The ninth, tenth and eleventh	Applications on the commandsSlice - Revolve - Extra
The second and thirteenth	Solid Editing drawing revisions
Fourteenth and fifteenth	.department's specialty Draw an applied example within the

Course description form

English language2

Course description

studied in order to help the student write and understand topics and skills related be English language must for how to write research and presentations ideas to the engineering field, in addition to developing.

1. outcomes and teaching, learning and evaluation methods Course
objectives Cognitive -A • people Learn how to talk to • Developing the skill of scientific knowledge of engineering topics • Developing skills in using methods to prevent the theft of intellectual rights • Actual participation in class and interaction with students.

2. Educational institution	**Hawija -Northern Technical University Technical Institute**
3. department Scientific center/	**Mechanical technologies/production branch**
4. Course name/code	**English language2**
5. Available attendance forms	**My presence**
6. Semester/year	**Second Year**
7. Number of study hours (total)	**30**
8. Date this description was prepared	**2024-4-4**
9. Course objectives	
- **and simple compositional pieces role is in teaching writing primary and prominent**	

research related to the field of study **- scientific research methods their skills in Teaching students to use** **- ooksDeveloping students' skills by speaking and analyzing reading in b.**

.the course of objectives skills The - B 1- people Learn how to talk to 2- Developing the skill of scientific knowledge of engineering topics. 3- Developing skills in using methods to prevent the theft of intellectual rights. 4- Actual participation in class and interaction with students.
Teaching and learning methods
1- and topics related to previous educational with the basics Providing students or lecture presentation outcomes through **2- by groups of students and share the solution with them examples Solve a group of** **2- with student participation English Expand the discussion of speaking** **-4 and weekly tests Continuous daily surprise** **5- Of which To benefit websites Guiding the student to some.**
Evaluation methods
Evaluating students individually by giving them an opportunity to participate in the 1 questions the answer ...through classroom. **2- Evaluating students collectively through daily exams with practical and theoretical questions.** **2- Evaluating students collectively by giving class assignments such as writing reports or doing assignments.** **-4 monthly exams for students to evaluate their general performance and permanent understanding of the subject.** **exams final - 5**
Emotional and value goals -C Observation and perception 1-C 4-Conclusion and evaluation C 3-Analysis and interpretation C 2-C Preparation and evaluation

Teaching and learning methods
Using modern means to present the scientific and theoretical aspect, such as .1Show Data devices to attract attention and attract students so that the idea reaches the , .student better **. 2. g skillsGiving students class assignments that require them to exert writin** **.3 how,) questions discussion sessions by asking thinking through students Questioning .for specific topics (why, when, where, which** **4. Linking the cognitive aspect to the student's stock of knowledge to develop speaking and writing skills**
Evaluation methods
• Monthly exams • Daily exams • Duties • Regular attendance + daily participation

Name of the unit/topic	the week
How to replace The phrasal verbs in the sentence with more appropriate verb	1
Auxiliary verbs	2
Present tenses	3
Past tenses	4
Modal verbs	5
Time expressions	6
reported speech	7

Conditionals	**8**
Future forms	**9**
As, like	**10**
The pursuit exam for the second semester	**11**
adjectives	**12**
Oral exam	**13**
Review the material and prepare for final exams	**14**
Review the material and prepare for final exams	**15**

10. Infrastructure	
• John & Liz Soars, "New Headway Plus Beginner Student's Book", 10th ed 2014	**Required prescribed books -1**
nothing	**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

Course description form

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 opportunities available. It must be whether he or she has made the most of the learning .linked to the program description

1 Educational institution .	**Hawija -Northern Technical University Technical Institute**
2 Scientific department/center .	**Mechanical techniques**
3 name/code Course .	**Industrial drawing**
4 Available attendance forms .	**My presence**
5 Semester/year .	**the second**
6 (total) Number of study hours .	**72**
7 Date this description was prepared .	**2024-4-4**
8 Course objectives .	
Acquiring the necessary skill to read technical drawings, know engineering symbols and terminology, and standard specifications, and draw simple and complex assembled mechanical parts that are most frequently encountered in the student's practical life.	
9 Course outcomes and teaching, learning and evaluation methods .	
Cognitive objectives -A **Developing and developing the student's mental and motor abilities in drawing simple and shapes and complex shapes and expanding the horizons of his imagination of geometric .assemblies to learn about their components, parts, mechanics and working principle**	
.The skills objectives of the course -B **Organizing the student's thought to develop a specific and sequential strategy for drawing, g geometric shapes and parts of machines and equipmentassembling and disassemblin**	
Teaching and learning methods	
1. **. theoretically Giving lectures** 2. **.Show movies** 3. **.Discussion**	
Evaluation methods	
1. **.oral test** 2. **.A written test**	

Emotional and value goals -C 1. **.Brainstorming** 2. **.tools demonstration**
Teaching and learning methods
1. **.Intellectual questions** 2. **fee**
Evaluation methods
1. **.oral test** 2. **A written test**
Transferable general and qualifying skills) Other skills related to employability and) - D .personal development

Chapter One – Practical vocabulary	
the week	**Vocabulary details**
the first	A general review of first grade topics: geometric lines, projections, sections, and .setting dimensions using the AutoCAD program
The second and third	.types of nuts, with a drawing ,Methods of fastening using screws, types of screws
Fourth and fifth	.Fastening using threads, their types, uses, drawing an assembly drawing
Sixth and seventh	Connection by welding, welding symbols, drawing an assembly plate with welding .symbols
Eighth and ninth	using rivets, shapes of rivet nails, types of fastening using rivets, drawing Fastening .an assembly plate
The tenth	.Application board for disassembly and assembly of mechanical crane
eleventh	.Springs, their types, uses, drawing of a compression spring
twelveth	.Drawing an applied panel for segmenting and assembling the exhaust valve
Thirteenth	.Column connections (couplings), types, drawing of an applied plate
fourteenth	.Clutches, their types and uses, with an applied drawing
Fifteenth	.chairs, assembly drawing of a friction loading chair Loading
sixteen	Pulleys and belts, their types and uses, with two drawings for assembling parts .containing belt wheels of different types
Seventh and eighteenth	drawing of the gear with an assembly plate ,Types of gears, gears, basic definitions .for engaging the gear

nineteenth and twentieth	.Bevel gears, with a drawing of an assembly plate for the bevel gear engagement
first and -Twenty second-twenty	Introduction to Autodesk Inventor
twenty third	drawing environment D2
fourth and -Twenty fifth-twenty	Assembly environment
sixth and -Twenty seventh-twenty	Dynamic and motion analysis environment
eighth-Twenty	Additions to fees
nine and -Twenty nine-thirty	relevant department for part of any practical A project within the jurisdiction of the .system

semester second - vocabulary Practical	
the week	**Vocabulary details**
first	Pulleys and belts, their types and uses, with two drawings for assembling parts .containing belt wheels of different types
The second and third	Types of gears, gears, basic definitions, drawing of the gear with an assembly plate for .engaging the gear
Fourth and fifth	.Bevel gears, with a drawing of an assembly plate for the bevel gear engagement
Sixth and seventh	Introduction to Autodesk Inventor
VIII	D drawing environment2
The ninth and tenth	Assembly environment
Eleventh and twelfth	Dynamic and motion analysis environment
Thirteenth	Additions to fees
Fourteenth and fifteenth	of the relevant department for part of any practical A project within the jurisdiction .system

Course description form

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 whether he or she has available. It must be learning opportunities made the most of the .linked to the program description

1. Educational institution	**-Northern Technical University Hawija Technical Institute**
2. Scientific department/center	**Mechanical technologies/production branch**
3. Course name/code	**technology Machinery parts**
4. Available attendance forms	**My presence**
5. Semester/year	**second + Second year/first semester semester**
6. (Number of study hours (total	**72**
7. Date this description was prepared	**2024-4-4**

8 Course objectives -

Machine parts aim to clarify the role of mechanical parts in the machine system, the relationship that links these parts to each other, and how to perform some calculations to design these parts .and determine all the factors affecting them

9- comes and teaching, learning and evaluation methodsCourse out

Cognitive objectives -A

.The skills objectives of the course -B

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
drawing , Intellectual questions
Evaluation methods
.oral test A written test
General and qualifying transferable skills) Other skills related to employability and personal) -D .development

Theoretical Subjects – first semester	
Week No.	**Subject Topics**
1	Review of Strength of Materials
2-3	Riveted Joints.Types of Riveted Joints, Design of Riveted Joints, Efficiency of Riveted Joints.
4-5	Welded Joints Types of welding Joints ,Design of welding Joints
6-7	Screwed Joints, Design of Bolts for Fastening, Design of Bolts for Power Transition.
8-9	Keyed Joints, Types of Key, Design of Sunk Key.
10-11	Frictional Clutches, Type of Frictional Clutches, Design of Frictional Clutches.
12-13	Types of Springs, Design of Springs
14-15	Types of Belts , Design of Belts.

Theoretical subjects – second semester	
Week No.	**Subject Topics**
1	Design of Shafts
2-3	Design of Journal Bearings
4-5	Selection of Ball Bearings
6-7	Design of Gears by Lewis Equation
8-9	Gears Trains

10-11	Design of Simple Gears Box
12-13	Worm Gears
14-15	Cams

	Infrastructure .10
	Required prescribed -1 books
1-Strength of Material by Ferdinal L. Singer 2-Strength of Materials by RSKhurmi . 3-Machine Design by RS Khurmi , JK Gupta 4-Machine Design by Paul H.Black . 5- Schaums Outline Series of Machine Design by Hall, Holowenko , Laughin	Main references) Sources) -2
	Recommended books and references Scientific journals,) (,....reports
	Electronic references, -B Internet sites

Course description form

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 whether he or she has made the most of must be linked to the program available. It learning opportunities the .description

1. Educational institution	**Hawija -Northern Technical University Technical Institute**
2. Scientific department/center	**Mechanical technologies/production branch**
3. Course name/code	**management Occupational safety and**
4. Available attendance forms	**My presence**
5. Semester/year	**Second year/first semester**
6. Number of study hours (total)	**30**
7. Date this description was prepared	**2024-4-4**
Course objectives .8	
management and its importance in Teaching the student the concept of various industries in a way that serves to improve productivity and reduce the percentage of spoilage, how to apply procedures to prevent industrial .accidents, and how to control quality	
9- learning and evaluation methods ,Course outcomes and teaching	
Cognitive objectives -A 1- .Learn about management tasks 2- .Learn about industrial safety 3- .Learn about quality control methods	
.The skills objectives of the course -B 1- Ability to work in the areas of manufacturing .production and 2- The ability to work on a group for the .purpose of completing the work	
Teaching and learning methods	
1- .Delivering theoretical lectures 2- .Show movies 3- .Discussion	

Evaluation methods
1- .oral test 2- .A written test
goals Emotional and value -C 1- .Brainstorming 2- .demonstration tools
Teaching and learning methods
1- .Intellectual questions 2- fee
Evaluation methods
1- .oral test 2- A written test
Transferable general and qualifying skills) Other skills related to) - D personal development employability and

Chapter One – Theoretical vocabulary	
the week	**Vocabulary details**
the first	: Administration Management and its development, stages and development of management, basic .levels of management ,principles of management, characteristics of management
the second	: Administration Administrative functions, industrial management, its functions, industrial .engineering, characteristics of industrial management
the third	:Industrial unit arrangement industrial unit Location and arrangement of the - .The main factors affecting the selection of industrial project sites - .(Arrangement of the industrial unit (initial arrangement of the factory - .Classification of types of industrial unit arrangements - es in which it is applied (commodity, functional, Advantages, limitations, and cas - .(mixed, and combined arrangement
the fourth	An idea about the feasibility study for :Feasibility study for industrial projects the , iesthe stages of feasibility stud , the industrial project , industrial projects .importance of feasibility studies
Fifth	Production planning, the concept of production planning, :Production planning .objectives of production planning and control
VI	:Production planning linear programming methods, ,Types of production, production planning methods .graphical method, and transportation method
Seventh	.Discussing reports submitted by students with a test
VIII	:Study work and standard time .Work study, work study methods, method study, time study, work measurement

Ninth	Maintenance, the importance of maintenance, the concept of the :aintenanceM technological system
The tenth	.Types of maintenance, types of holidays :Maintenance
eleventh	Training, the concept of training, the importance of training, training :Training .methods
twelveth	.Costs, classification of costs, wages :Industrial costs and wages
Thirteenth	Methods of calculating wages, incentives, and types of :Industrial costs and wages incentives
fourteenth	:purchase management inventory, types of stored materials and methods of ,Purchases, purchasing steps .controlling them
Fifteenth	: Industrial safety Industrial safety, accidents, types of accidents, road accidents, protective equipment .and their types

11 Infrastructure .	
	books Required prescribed
	Main references) Sources)

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 .be linked to the program description available. It must

1. Educational institution	**Hawija -Northern Technical University Technical Institute**
2. Scientific department/center	**Mechanical technologies/production branch**
3. Course name/code	**processes Manufacturing (METP212)**
4. Available attendance forms	**My presence**
5. Semester/year	**year /first semester + second semester Second**
6. Number of study hours (total)	**90**
7. Date this description was prepared	**2024-4-4**

8- Course objectives

capable of working in the fields of manufacturing and production to Graduating an intermediate cadre :contribute to the following work

The ability to analyze processes into operating components .1

.2 Numbers of technological path between production units

.3 orders for each unit and each machine, and calculating the operating Preparing operation cards and time and loading programs for the units

.4 Determine the elements of control and quality control

.5 Conduct preliminary calculations of operating costs.

9- learning and evaluation methods ,Course outcomes and teaching

Cognitive objectives -A

1 .Learn about metal production processes and their types -

2 .Learn about metal formation and formation theory-

3 .Identify methods of manufacturing metals -

.The skills objectives of the course -B

1- .Ability to work in the areas of manufacturing and production

2- .The ability to work on a group for the purpose of completing the work

Teaching and learning methods

1- .Giving lectures theoretically

2- .Show movies

3- .Discussion
Evaluation methods
1- .oral test 2- .written test A
Emotional and value goals -C **1** .Brainstorming - **2** .Means of clarification -
Teaching and learning methods
drawing , Intellectual questions
Evaluation methods
1-.oral test 2- A written test
Other skills related to employability and personal (General and qualifying transferable skills) -D development

Chapter One – Theoretical vocabulary	
the week	**Vocabulary details**
the first	Geometric tolerances, duals, dual systems, orders of tolerances, dual units, basic ,deviations
the second	of tolerances, hole basic system, column basic system, symbols of duals, Types tolerances for loose dimensions, detailed duals, selection of duals and their economic .advantages
the third	.position tolerances Geometric tolerances in shape and position and types of shape and
the fourth	Measurement specifiers, design of measurement specifiers, types of measurement specifiers (internal measuring specifiers, external measuring specifiers, adjustable .(easuring specifiersmeasuring specifiers, solid measuring specifiers, special m
Fifth	Classification of metal fabrication, metal working, introduction to the theory of blade formation and influencing factors, methods of fixing workpieces, including round and .longitudinal and transverse feed shares round, the cutting edges used, and the-non
VI	.Identifying the pens used and how to install them for crafts, shaping lathe pens
Seventh	Identifying the types of turning pen angles, the effect of turning pen angles on the cutting pen metals, cutting conditions, cutting elements, uses of cutting process, types of turning speeds, and the use of tables and speed maps, classification of cutting tools with respect .to operating methods and number of cutting edges
VIII	and the theory of its formation, the factors The cutting edge, the emerging cutting edge that affect it, the factors that lead to reducing its size, cooling and its importance for .cutting operations, various cooling liquids
Ninth	calculate its components, ,How to conduct an operating card for a group of operations and calculate the cutting time for each operation
The tenth	How to take advantage of the sequence card to make a product path through the different .units properties of the The effect of the -Factors that affect the choice of cutting speed (1 The effect of the properties of the -The effect of the operating elements. 3 -cutting tool. 2 .metal being worked

eleventh	Automatic turret turning machines, studying the processes that can be operated and .product, how to prepare operating cards analyzing the processes on the
twelveth	Types of tools used and their arrangement on the front and rear hexagonal and .quadrilateral heads
Thirteenth	Studying how to program automatic programmed lathes and the factors influencing .soperating step
fourteenth	Milling, learning about the operations that can be performed on milling machines, parts and components of horizontal and vertical milling machines, and the nature of the work .of each part
Fifteenth	s for attaching workpieces, mandrels, and Machine accessories, dividing heads, tool .bushings

second semester - Theoretical vocabulary	
the week	**Vocabulary details**
the first	gear sharpening knives, angle milling knives ,(Types of milling knives (disc and finger
the second	steps for performing milling operations, choosing the appropriate Explaining the .machine, the initial dimensions of the artifacts, and methods of attaching the artifacts
the third	(Milling different types of gears (steel, conical, helical, worm gears
the fourth	How to make a ghanfari clutch, aV - .block clutch
Fifth	Operating rates, cutting and feeding speeds, and the basis for their selection for the .following various milling operations
VI	vertical), operations ,Skimming: Introduction to the types of planers (trolley, hopper performed on the planing machine, operating capabilities available with each machine, .methods of attaching the work
Seventh	Operating rates, including cutting and feeding speeds, planer attachments such as devices, angles of planer pens, and types of forces affecting dividing heads or special .them
VIII	The planer planer, clarification of (the cutting stroke, the return stroke), methods of connection to the planer machine and operating rates, calculating the cutting time for .planing, preparing the planer sequence card
Ninth	Grinding: An introduction to the theory of cutting and the shape of the blade in the grinding process, the grinding stones used (circumferential, face, side, cup, external, .and uses, attachment methods and balances internal), their specifications
The tenth	Different grinding machines and the operating capabilities of each type (external and .(internal cylindrical grinding machines, tool sharpening machines
eleventh	.card for all cutting operations Preparing a comprehensive operating
twelveth	Metal forming: theory of forming, foundations of cold and hot forming, types of .forming

Thirteenth	:Rolling mill The basics of rolling and its methods, rolled products, sequence of operations in .machines used, conditions for completing the rolling process ,rolling :Extrusion Foundations of metal extrusion and used metals, direct extrusion, reverse .extrusion, types of extrusion products
fourteenth	:Cutting and perforation operations, types of molds and their parts, in each The foundations of shearing case, dimensions of the raw material and methods of selecting it, calculating .shear force :(Drag and deep drag) The foundations of pulling and deep pulling operations, calculating the pulling .special ratios in each case, types of pulling and their uses forces and
Fifteenth	:Study of unconventional methods in metal forming Hydrostatic extrusion -A .Using electrical discharge-B .Electromagnetic fields -C .this process Formation with explosives and the advantages of -D

Chapter One – Practical vocabulary	
the week	**Vocabulary details**
the first	Measurement, exercises and applications on dualities, conditions of tolerance zones, and .use of tolerance tables
the second	.deviations, exercises on using tables Using tables for free dimensional
the third	Trainings on measuring the quality of surface finishing (for some products in the .(measurement laboratory
the fourth	Measurement parameters, familiarity with the types of measurement parameters, how to use them by choosing the dimensions of artifacts, designing different measurement .parameters
Fifth	Lathe: Getting to know the parts of the lathe and their work, learning about the pens used ow to use tables and and how to install them on the workpieces, as well as learning h .speed maps in the lathe
VI	.Slaughtered lathe using the moving crow method or using
Seventh	.A lathe extracted using a duplicating device or a side ruler
VIII	them (the triple Learn about the lathe accessories and how to install the workpiece on .(sampler, the rotating tray, the rotary key, and the reel
Ninth	sectioned workpieces on the rotating tray or quadrilateral tray and its -Installing irregular .axes
The tenth	.the turning process Identify the emerging cutting edge and how it is formed during

eleventh	Identify the shapes of the blades produced and their relationship to depth of cut and other .cutting conditions
twelveth	Calculating the cutting time on the lathe and comparing it with the theoretical method, .reasons for the differences that appear studying the
Thirteenth	.Preparing the process sequence card and programming the turret lathes in the workshops
fourteenth	.Conduct a practical exercise on the lathe
Fifteenth	ssories, and machine specifications, with Milling, identifying milling machines, their acce .a detailed explanation of the mills and their parts
Chapter Two -Practical vocabulary	
the week	**Vocabulary details**
the first	Getting to know the milling knives, as well as learning how to test the feeding and milling speed with the milling machine and choosing the sequence of operations for the .workpiece
the second	Carrying out training on the milling machine that includes basic operations and using the .dividing head
the third	.ng the drains and shoulders in a group mannerComplete the exercise by sorti
the fourth	Get to know the planing machines in the workshop, along with their components and .spare accessories, and watch examples of the operations performed on the planer
Fifth	exercise on the skimming machine that includes using the Conducting a practical .machine's accessories
VI	Getting to know the grinding machines in mechanical laboratories and seeing examples g of different grinding processes and tools. Getting to know in detail the tool sharpenin .machines and performing a simple exercise on them
Seventh	Conduct another exercise on the age of the number
VIII	Identify the different types of grinding stones and see the abrasive (cutting) grains of the the signs and symbols on the grinding stone grinding stone under the microscope. Study .and compare them in the different types of stones
Ninth	Identifying the grinding stone balancing devices and how to use them, disassembling and .installing the grinding stone
The tenth	:Forming operations .Learn about mechanical blacksmithing processes, see the devices used
eleventh	Familiarity with rolling mill operations and identifying the different sections and .products produced in this way
twelveth	.made in this way Learn about extrusion currencies and the products
Thirteenth	.Learn about the processes of cutting, perforating and hollowing out
fourteenth	Learn about pulling and pressing operations, perform exercises on them, and produce .products using these methods
Fifteenth	for forming metals and increasing the sites that contain machines Identifying methods .and devices for these methods

Infrastructure

The required prescribed books - 1	
1- .Engineering principles of metals and materials have mercy on Dr. Hussein Baqir, may God -Q. Bailey, translation .him 2- Engineering metallurgy) Applied physical metallurgy) George Yacoub, Reda Muhammad Ali -a. Hickens, translation 3- .Metals: their structure, properties and thermal coefficients Dr.. C. Degerol. a . Olyman .Haidari, Adnan Nehme-Al Dr. Jaafar Taher –Translation 4- .Engineering materials and their tests -Khazraji, Adel Mahmoud Hassan, Abdel-Dr.. Qahtan Khalaf Al Sharif-Jawad Muhammad Al 5- .Properties of engineering materials Dr.. Sabah Amin Karakji, Dr. Walid Muhammad Saleh, Dr. Talib .Sharif-Al Hussein 6- .Mineral physics .Dr.. Abdul Razzaq Ismail Khudair :English sources 1 - Basic Engineering Metallurgy Theories Principles and application Aarkeyser Keyser introduction to structures and metals, vsivarajan 2- 3-Introduction to physical metallurgy, Avnet.	2 Main -) references (sources

Course description form

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, learning opportunities demonstrating whether he or she has made the most of the .available. It must be linked to the program description

1. Educational institution	**-Northern Technical University Hawija Technical Institute**
2. Scientific department/center	**Mechanical technologies/production branch**
3. Course name/code	**Occupational safety and management**
4. Available attendance forms	**My presence**
5. Semester/year	**second + Second year/first semester semester**
6. (Number of study hours (total	**96**
7. Date this description was prepared	**2024-4-4**

8 Course objectives -

Preparing technical cadres with information in metallurgy and materials science who are responsible for studying the country's need for development and progress and who are able to meet the needs of the labor market in state institutions and .rsindustry secto

9- Course outcomes and teaching, learning and evaluation methods

Cognitive objectives -A

Preparing an educated generation armed with the necessary science skills and adopting it as a sound basis for bringing about radical changes and putting scientific knowledge and the method of scientific thinking in the service of the bling it to continue its higher studies and adapt to the nation's goals and ena .modern era

Developing technologies to keep pace with the expansion of human needs

.The skills objectives of the course -B

e to Analyzing engineering problems, arriving at their solution, and being abl .suggest appropriate alternatives

.Scientific investigation and evaluation

Teaching and learning methods

.Delivering theoretical lectures

.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
Transferable general and qualifying skills) Other skills related to) - D .employability and personal development

Chapter One – Theoretical vocabulary	
the week	**Vocabulary details**
the first	Introduction to mineralogy, crystallization, chimeric crystallization, and the effect of .cooling rate on the structure of minerals
the second	.Installation of metal blocks (solidification of castings) Common defects in castings
the third	Atomic crowding coefficient, crystallographic directions, crystallographic levels, the .phenomenon of rooting
the fourth	.Crystalline, point, linear lattice defects
Fifth	(Flexible forming and plastic forming (sliding, twinning
VI	.Strain hardening, cold forming, hot forming
Seventh	.Recovery, recrystallization, crystal growth
VIII	Stress and strain curves in bending, stretching, fracture, types of fracture, movement .from ductile to brittle fracture
Ninth	resistant -Fatigue, fatigue mechanism, factors affecting the fatigue limit, fatigue .materials
The tenth	.resistant materials-Creep, creep mechanism, creep
eleventh	Compound, phase, solid solution, system, equilibrium, alloy formation, mechanical .mixture, eutectics
twelveth	Thermal equilibrium diagram for a binary system that is completely dissolved in the inary system that is liquid and solid states. Thermal equilibrium diagram for a b

	.(completely dissolved in the liquid state and undissolved in the solid state (eutectics
Thirteenth	Thermal equilibrium diagram for a binary system with complete solvation in the liquid .state and limited solvation in the solid state
fourteenth	Thermal equilibrium diagram for a binary system that is completely dissolved in the .liquid state and forms a chemical compound when frozen
Fifteenth	Iron, dissolution of carbon in iron, heat equilibrium diagram for the iron/carbon system, .most important reactions included in the diagram the

second semester - Theoretical vocabulary	
the week	**Vocabulary details**
the first	.Cast iron production and its heat treatments
the second	.Supplementing the production of cast iron and its most important types
the third	Definition of corrosion, direct and indirect economic costs of corrosion, .manifestations of corrosion, mechanism of corrosion
the fourth	Passivity, Faraday's law general corrosion, galvanic corrosion, cavernous .corrosion
Fifth	Soil corrosion, facultative corrosion, intercrystalline corrosion, and stress .corrosion
VI	.Optimal material selection, contour softening, design and operation
Seventh	.Methods of corrosion prevention
VIII	.Cast iron production and its heat treatments
Ninth	.Supplementing the production of cast iron and its most important types
The tenth	Definition of corrosion, direct and indirect economic costs of corrosion, .manifestations of corrosion, mechanism of corrosion
eleventh	Passivity, Faraday's law general corrosion, galvanic corrosion, cavernous .corrosion
twelveth	Soil corrosion, facultative corrosion, intercrystalline corrosion, and stress .corrosion
Thirteenth	.Optimal material selection, contour softening, design and operation
fourteenth	.Methods of corrosion prevention
Fifteenth	.Cast iron production and its heat treatments

Chapter One – Practical vocabulary	
the week	**Vocabulary details**
the first	Introduction to the metallurgy laboratory (resistance laboratory, heat treatment laboratory, microscopic examination and sample preparation laboratory, imaging (laboratory
the second	c and strain curve, elasti-Simple tension experiment, elongation curve, stress plastic formation, modulus of elasticity, maximum tensile strength(UTS) , .sectional area-relative elongation, decrease in cross
the third	strain curve, length -Compression experiment, load curve, elongation, stress sectional area, factors affecting the compression -relationship with cross .experiment
the fourth	.Hardness test, Pernell method
Fifth	.Hardness test, Vickers method
VI	Hardness test, Rockwell method- B - .
Seventh	Hardness test, Rockwell method- C - .
VIII	.Fatigue test
Ninth	.Creep test
The tenth	.(Charpy -Shock test (Izod
eleventh	Preparing samples for microscopic examination (smoothing, polishing, display, (examination under a microscope
twelveth	Establishing the alloying curve (thermal equilibrium) for a fully melted binary .alloy in the solid and liquid states
Thirteenth	Establishing the equilibrium curve for a binary alloy that is completely dissolved .in the liquid state and insoluble in the solid state
fourteenth	Establishing the equilibrium curve for an alloy that is completely dissolved in the .mited dissolution in the solid stateliquid state and has li
Fifteenth	Establishing the equilibrium curve for an alloy that is completely dissolved in the .liquid state and forms a chemical compound when frozen
Chapter Two -Practical vocabulary	
the week	**Vocabulary details**
the first	Examining different types of alloys, solid solutions, mechanical mixtures, and

	.chemical compounds under the microscope
the second	treated carbon steel under a microscope and -heat-Examining samples of non .calculating the carbon percentage
the third	.(Examination of cast iron samples for different textures (white, grey, spherical
the fourth	Conduct the recovery and recrystallization process and examine it microscopically and compare it with the examination before the recovery and ization processrecrystall
Fifth	Tempering carbon steel and comparing composition and properties before .tempering
VI	.Reviewing carbon steel and measuring hardness before and after review
Seventh	Conducting the hardening process in different cooling media and comparing the .hardness and microscopic properties of different samples
VIII	.Conduct a Jomney test to measure hardening ability
Ninth	.Surface hardening procedure using hard carburizing
The tenth	.Examining various samples of stainless steel and alloy steel under a microscope
eleventh	.Examining various samples of copper and brass under a microscope
twelveth	.Microscopic examination of various samples of aluminum
Thirteenth	.Conduct a chemical corrosion experiment, create a simple corrosion cell
fourteenth	Conducting a corrosion protection experiment using the cathodic protection .method
Fifteenth	Conducting an experiment on corrosion protection using the anodic protection .method

Infrastructure .10	
The required prescribed books - 1	
1 -Engineering Metallurgy (part 1) Higgins (Capright 1973 RAH) **Metallurgy for Engineering – Rollason (Third Eddy 1961)** 2- **Engineering physical metallurgy Prof. Y. Lnthin**	**2** Main references)) - Sources
	Recommended books and references scientific journals, reports) (
	Electronic references, -B ...Internet sites

Course description form

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, learning opportunities demonstrating whether he or she has made the most of the .It must be linked to the program description .available

1. Educational institution	Hawija -Northern Technical University Technical Institute
2. department Scientific center/	Mechanical technologies/production branch
3. Course name/code	Professional ethics
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

student to the skills of engineering The engineering ethics curriculum aims to introduce the ethics, the field of applied ethics, and a system of ethical principles that apply to the practice of engineering. This field deals with the obligations of the engineer towards society, towards his ession, and as a scientific discipline, it is closely related to many topics such clients and his prof .as the philosophy of science, the philosophy of engineering and the ethics of technology

9. outcomes and teaching, learning and evaluation methods Course

objectives Cognitive -A

Cognitive objectives -A

. engineering ethics Study basics of the year The student learns during -A1
of the most prominent ethics Enabling the student to know the main principles -A2
and the mechanisms ,their sources and types , of the engineering profession
.used for their purpose
Enabling the student to know all the basics that he uses in the scientific -A3
subject

.the course of objectives skills The - B

Enable students to become familiar with the basic information necessary to be -B1
free from all violations
Their knowledge of the most important ethics and instilling a sense of -B2
.responsibility towards their individual rights and public interests

Teaching and learning methods

✓ electronic form and presents The teacher prepares lectures on the subject in .them to the students ✓ .The teacher delivers lectures in detail ✓ The teacher requests periodic reports and homework assignments on the basic .topics of the subject ✓ Recital methods and lectures ✓ Dialogical methods ✓ Use of projectors
Evaluation methods
1- Daily discussion to determine the students' understanding of the material and evaluate the (daily post) .daily contributions 2- Daily exams with various short scientific questions to understand the extent of their .material of the understanding 3- .Giving a portion of each chapter's grade to homework assignments **4-** Monthly) . Daily exams (kozat) and monthly exams for the curriculum and the final exam **((end of semester)** exams final + exams
Emotional and value goals -C Enables students to identify the values, trends, and patterns of behavior that elevate . professional ethics and work to adhere to them Urging the student to understand the purpose of studying the subject in -C1 .general out how to develop himself in the field of Urging the student to think ab -2 C .specialization Make the student capable of dealing with the calculator and how to use the -4 C .programs in accordance with the systems and rules of ethics of his profession
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 videos and ,Explanation and clarification through the use of pictures, diagrams - 4 the data show to display the lecture Use -5

Theoretical vocabulary	
the week	**Vocabulary details**
the first and the second	**Ethics –Unit (1)** , sources of ethics , general rules of ethics , The concept of ethics and its origin .ethics for the individual and society the importance of , moral values

The third, fourth and fifth	**Work and profession –Unit (2)** the , the concept of the profession , work behaviors , Work and its importance the difference between the concept of work, the , definition of the profession .the standards on which the profession must be based , profession and the craft
Sixth and seventh	**Professional Ethics –Unit (3)** • to of commitment consequences negative the , What is professional ethics characteristics of professional , characteristics of work ethics , professional ethics .steps of the acceptable level of professional ethics , ethics
Eighth and ninth	**Values and professional ethics -Unit (4)** .of work mastery and , good dealings , justice , advice , honesty , Honesty
The tenth, eleventh and twelfth	**in the profession Ethical Others the behavior Patterns –Unit (5)** • definition of , unethical administrative behavior : **Administrative corruption** the concept , **bribery** , types of administrative corruption , administrative corruption the reasons , the difference between a gift and a bribe , types of bribery , of bribery , the concept of fraud , **fraud** , and motives behind bribery . Function performance in Cheating manifestations , The nature of fraud at work
The thirteenth, fourteenth and fifteenth	**Means and methods of consolidating the values of professional ethics -Unit (6)** .Method of establishing professional ethics . ionOccupat Ethics consolidation Levels of construction and .Occupation Ethics and methods of consolidation Means Things that must be taken into consideration in formulating the ethical code of the .profession .(to promote ethical behavior at work according to (Kreitner and Kinicki How

10. Infrastructure	
(Professional ethics book (methodological	**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	

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

Course description form

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 opportunities available. It must be whether he or she has made the most of the learning .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	Laboratory (TIH102)
4. Available attendance forms	My presence
5. Semester/year	First year/first semester + second semester
6. Number of study hours (total)	90
7. Date this description was prepared	2024-4-4
8. Course objectives .8	
work of filing, welding, plumbing, turning, and carpentry know the Teaching the student to	
9. Course outcomes and teaching, learning and evaluation methods .9	
Cognitive objectives - 1- Training the student on proper filing work and how to use measuring tools, files, and cutting drill, and drill ,with a saw 2- train in the welding workshop on the various tools, tools and devices Teaching the student to present inside the workshop 3- How to plan on sheet metal, how to cut, assemble and welding process and training on the necessary measuring tools Training the student on various lathe machines	
.The skills objectives of the course -B 1- The filings	

2- Lathing 3- Carpentry 4- Welding
Teaching and learning methods
1- Practical lectures
Evaluation methods
1- Theoretical test 2- Practical test 3- Reports
value goals Emotional and -C confidence-Increasing the student's self -1 Managing time and not wasting it -2 Increase the spirit of competition -3
Teaching and learning methods
1- Giving lectures 2- (Using modern means (calculators and the Internet 3- devices and tools Application on available
Evaluation methods
1- Theoretical test 2- Practical test 3- Reports
Transferable general and qualifying skills (other skills related to employability and -D .(personal development 1- Ability to work in lathe factories 2- laboratories Ability to work in welding 3- Ability to work in the plumbing profession
.The skills objectives of the course -B 5- The filings 6- Lathing 7- Carpentry 8- Welding

Chapter One - vocabulary Practical	
the week	Vocabulary details
the first	(Milling (5 weeks -1 .machine, main unit Horizontal milling -1 Explaining the parts of the machine and the function of each one, operating the machines and choosing speeds and feeds, tools and devices attached to the machines, their uses and methods

	trays, universal milling heads, rack work heads, of installing them, dividing heads, slots, rotary .sewer work heads :Milling balls -2 Types (cylindrical surface milling, shoulder milling, sewage work blocks, gear sharpening (machines, special cylindrical forming machines with internal or peripheral holes Uses of cables, methods of installing them, and installing artifacts :Milling flat surfaces -3 Choosing and installing the appropriate cutter, adjusting the cutting and feeding speeds, how to arts of the milling operations install the workpieces, the sequence of operating operations, the p .to prepare flat, inclined and opposite surfaces and create a group of different ducts
the third	: Dividing heads and their uses -1 ,The dividing device and how to use it, simple dividing, dividing using circles of holes differential dividing, dividing corners, doing exercises on different types of dividing (dividing .(parts, dividing corners Milling straight gears on general machines and gear racks, rules for cutting gears, used -2 ocessing and operating processes, parts for chains, service equipment, and preparing pr milling operations, reviewing the final dimensions, training on milling a gear arch and .gear rack
the fourth	:Milling bevel gears on general machines -1 (The same method for milling straight gears) :gears and inclined racks on general machines Milling helical -2 (The same method for milling straight gears)
Fifth	Milling crafts by dividing the corners -1 .Milling of internal sewers -2 ,Milling curves, explaining the general laws of each process, steps to implement it -3 preparing raw materials, choosing diameters, choosing operating rates, performing .milling operations, reviewing the dimensions of the artifacts
VI	**(Grinding (5 weeks -2** :Grinding machines -1 (grinding, tool sharpening Internal and external cylindrical, eccentric grinding, surface) :Grinding stones -2 Their shapes, types, specifications, use of each, preparing grinding stones for operation .(adjusting balance, leveling stones) :Surface grinding machines -3 each, the method of operation and Explaining the parts of the machine and the function of adjusting the travel, the speed of feeding and feeding, methods of installing the workpieces, the .use of cooling fluids and its types .Training on grinding flat, parallel, perpendicular and inclined surfaces -4 .g: Training on grinding different drains and round drainsDrain grindin -5
Seventh	:Cylinder grinding-1 Parts of the machine, how to operate it, adjusting operating speeds and rates, testing the fluids and measuring appropriate stone for the workpiece, installing the artifacts, using cooling .tools .Exercises on external and internal cylindrical grinding operations -2
VIII	.Eccentric grinding and grinding of cranks-1 .Various grinding operations using previous grinding operations and training on them-2
Ninth	:sharpening machine Number Operating tool sharpening machines, how to deal with them, and choosing the appropriate -1

	.machine for sharpening the specific tool How to install the cutting tool on the machine and determine the required angles for the cutting .edge edged -forming sharpening operations on models of a number of pieces (singlePer -3 .edged cutting tool-edged cutter, multi-cutting tool, double
The tenth	Maintenance of grinding machines (general internal and external cylindrical grinding (machines .replace the coolant and determine the required level How to -1 .Determine the lubrication locations for the machine and the appropriate type of oil and grease Performing the process of replacing the belts that transmit rotary speeds for stone and -3 .workpieces
eleventh	**(Scraping (5 weeks-3** :Flat and vertical planers -1 The difference between using each of them, the parts of the machine and the method of work, the objects and surfaces that can be operated on each of them, the pens used, the methods for them, the speeds of cutting and feeding, the inoculation rates, and the selection of installing .each of them .Exercises for scraping straight and inclined surfaces at different angles -2 .Exercises to make internal and external drains of various shapes -3
twelveth	,ses for scraping surfaces and complete items, parts of machinesExerciV- .blocks, drill bases
Thirteenth	.Exercises on scraping arcs, making sewers on circular works using dividing devices on planers
fourteenth	.Various scraping exercises
Fifteenth	:Maintenance of skimmer machine .Maintenance of the cart scraping machine -1 Opening the crocodile and maintenance parts for the control parts along the stroke, as well as .changing the location of the stroke .operations and opening the oil pump Parts of various lubrication and lubricating -3

semest second - vocabulary Practical	
the week	**Vocabulary details**
the first	**(Lathing (5 weeks-4** Eccentric turning and turning using a quadrilateral eyelet and methods of installing special -1 .workpieces ..on various eccentric objects Exercises-2
the second	.External and internal rotation lathe and formation lathe -1 .Exercises for various lathe operations using modeling pens-2
the third	:Turret lathes .feed tables A general idea about turret lathes and the use of speed and -1 .Follow up on the operations of various products and prepare the sequence of their operations
the fourth	The pens and tools used, the method of adjusting them, and preparation for making various -1 .crafts .operations How to prepare maps that follow-2

Fifth	:Lathe maintenance .Conduct disassembly and maintenance of triple and quadruple samples -1 .Dismantle the moving crow and perform maintenance -2 .Dismantling the small and large plotters and performing their maintenance -3 .main cutting speed box and calculating the feed speed Maintaining the -4
VI	**Machines programmed using -5G-Code** A historical overview of -1CNC machines the differences between regular machines and ,CNC machines .stages of work on programmed machines , the parts of the machine, the movement axes, the control panel, and the Definition of -2 .definition and operation of the machine in practice
Seventh	Program, program structure, how to program milling machines, functions used in programmed .machine, functions of movement levels machines, zero point of the (G17 , G18 , G19) Motion coordinate functions(G90, G91) . .how to use the program, program instructions, Simulation using simulation programs -2 executing , systemCNC machine according to the ISO9001 The control panel for the -3 movements via the manual control device, zeroing the machine, zeroing the triangular machine, .zeroing the workpiece, and methods for installing the workpiece
VIII	(reference points) functions for storing segment zero points ,(G1, G2) Linear motion functions (51,G52,G53,G54,G55,G56,G57,G58,G59) auxiliary functions ,F,M,S,T Implement a face milling program using the instructions above and apply it to the -2 .calculator using simulation programs and implement it practically on the machine .function repetition function, mirror image formation ,G2, G3 onal motion functionsRotati -3
Ninth	Create a program to implement circular cuts (quarter circle, semicircle, full circle) and apply it .practically on the machine on the calculator using simulation programs and implement it G40, G41, G42, G43, G44 (Radius compensation functions (calibration functions -2 Create a program to implement two exercises, one of which is relief and the other is drilling, and programs and implement it on the machine using the apply it on the calculator using simulation .above functions
The tenth	stage drilling function, tooth operating -stage drilling function, two-Fixed functions, single -1 operating function, function, hole expansion function, sifting ring function, longitudinal slit .circular drilling operating function Implementing a program using the previous functions and applying it on a calculator using -2 .simulation programs and executing it on a machine ck the lubrication system in the Maintenance of the machine, how to replace the parts, che -3 .machine and lubricate the rotating shaft, check the cooling system and replace the coolant
eleventh	**Vocabularies for the workshop of programmed machines that operate with the-6CAD-CAM system** programmed machines, their accessories, and accompanying Introducing students to -1 .programs Identify the parts of the programmed lathe machine. Control panel keys and their respective -2 .functions, number of pieces, machine axes Using the-3CAD-CAM program to design an engineering product and implementing the product on the calculator using asimulation method .
twelveth	.Learn how to replace a damaged kit or define a new kit Implementing an integrated product on the machine, starting from the design stage on the CAD/CAM program through the simulation process, and ending with implementing the ,

	.product on the machine
Thirteenth	machine: the control panel keys and the Identify the parts of the programmed milling -1 .function of each, the number of pieces, and the machine axes To design an engineering product and implement the CAD/CAM software Using -2 method product on the calculator using a simulation
fourteenth	.replace a damaged number or define a new number Learn how to -1 Implementing an integrated product on the machine, starting from the design stage on the -2 through the simulation process, and ending with implementing the ,CAD/CAM program .product on the machine
Fifteenth	.Carrying out many exercises on lathe and milling machines