

Republic of Iraq

Ministry of higher education & scientific research

Supervision and scientific evaluation directorate

Quality assurance and academic accreditation

## Academic Program Specification Form For The Academic

University : Northern Technical University

College or Institute: Kirkuk Technical Institute

Department: Production Mechanics

Date of form completion: 16/1/2024

Assit.Prof. Dr. : Ashty Mahdi Aarif

Dean's Name

Dr. Sawash shaheen ibrahim

Dean's Assistant for  
Scientific Affairs

Head of Department

D sameen fadel

Date: 16/1/2024

Date: 11/1/2024

Date: 11/1/2024

Signature 

Signature 

Signature

Assic. Prof. Zuhair Shaker

Quality Assurance and University performance manager

Date: 14/1/2024

Signature



### **.1 Program vision**

The Technical Institute / Kirkuk seeks to prepare graduates in the field of mechanical technology specializations to work in government departments and .benefit from the specialization in the practical and applied field

### **2 .Program message**

Working to prepare and graduate leading scientific and leadership competencies in the field of mechanical/production technologies and to develop the balance of knowledge in the field of scientific research in the field of scientific specializations to serve the local, regional and international community, as well as training and refining the minds of students scientifically and cognitively, and emphasizing social .and cultural values and responding to Local market requirements.

### **3 .Program objectives**



The department aims to:

- A) Graduating technical personnel qualified to operate mechanical machines and manufacture spare parts, and to be a link between the specialist and the worker.
  - B) Contributing to the preparation of operating cards, whether for workshops or mechanical machines, and according to the operating elements.
  - C) Familiarity with industrial drawings, maps and plans.
  - D) Contribute to repairing damaged mechanical parts and conducting laboratory tests to find a solution.
  - e) Performing preventive and periodic maintenance of mechanical machines.
- Mechanical in the workshops and laboratories of the department.

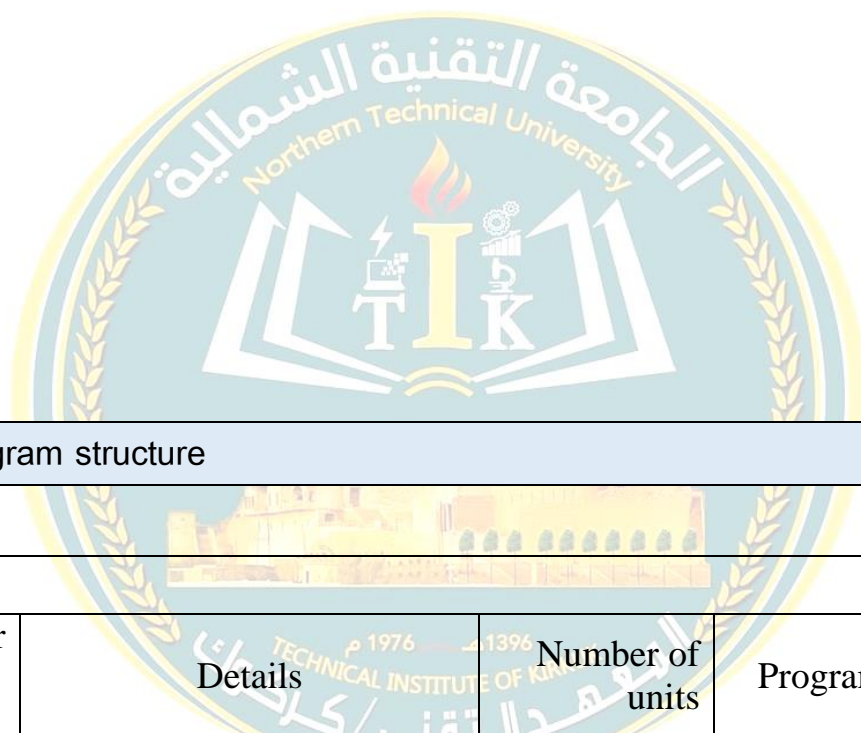


#### 4 .Programmatic accreditation

Program of the Ministry of Higher Education and Scientific Research

#### 5.Other external influences

- 1-There is a close relationship between the department's outputs and the labor market, and a market opinion is taken  
Working with the curriculum.
- 2-There is a continuous follow-up of the industrial preparatory school curricula for the purpose of conformity  
Its outputs to fit continuity into the department's vocabulary.



## 6 .Program structure

percentage	Number	Details	Number of units	Program structure	Sequence	
15.6%	16	Compulsory units	12-16%	University requirements	1	
	2	Optional units				
9.0%	10	Compulsory units	7-12%	Institute requirements	2	
	0	Optional units				
74.8%	78	Compulsory units	65-80%	Department requirements	3	
	5	Optional units				
	104	Total of compulsory units	111	Total for graduation requirements		
	7	Total of Optional units				
	111	Total units				



## 7. Program description

Credit hours		Course or course name	Course or course code	Year/level
Practical	Theoretical			<b>/ 2024-2023</b> Second
-	2	English Language 2	NTU200	
	2	Arabic Language	NTU202	
	2	The crimes of the Baath regime in Iraq	NTU203	
-	2	Professional Ethics	NTU204	
2	-	Project 1	METP208	
2	-	Project 2	METP209	
	2	Principle of	METP210	

		<b>Machines Parts</b>		
	<b>2</b>	<b>Advanced Machines Parts</b>	<b>METP211</b>	
<b>2</b>	<b>2</b>	<b>primary Manufacturin g Processes</b>	<b>METP212</b>	
<b>2</b>	<b>2</b>	<b>Advanced Manufacturin g Processes</b>	<b>METP213</b>	
<b>6</b>	-	<b>Primary Machining Workshops</b>	<b>METP214</b>	
<b>6</b>	-	<b>Advanced Machining Workshops</b>	<b>METP215</b>	
<b>2</b>	<b>2</b>	<b>Basics of Metallurgy</b>	<b>METP216</b>	
<b>2</b>	<b>2</b>	<b>Alloys</b>	<b>METP217</b>	
<b>3</b>	-	<b>Principle of Industrial Drawing</b>	<b>METP218</b>	
<b>3</b>	-	<b>Advanced Industrial Drawing</b>	<b>METP219</b>	
<b>1</b>	<b>1</b>	<b>Office Computer Applications</b>	<b>METP201</b>	
-	<b>2</b>	<b>Industrial Management</b>	<b>METP222</b>	
	<b>2</b>	<b>Welding Processes</b>	<b>METP223</b>	
<b>2</b>	<b>2</b>	<b>Metal Forming Processes</b>	<b>METP224</b>	



-	2	Quality Control	METP225	
Total theoretical and practical hours	62			
Total units	62			



Program description				
Credit hours		Course or course name	Course or course code	Year/level
Practical	Theoretical			First 2024-2023
-	2	Humans Rights	NTU100	
-	2	English Language 1	NTU101	
1	1	Computer's Principles1	NTU102	
-	2	Arabic Language	NTU103	
	2	French Language	NTU107	

1	1	Sport	NTU105
-	2	Mathematics 1	TIKI110
-	2	Mathematics 2	TIKI111
6	-	Workshop 1	TIKI112
2	2	Mechanics (Statics)	METP120
2	2	Mechanics (Dynamics)	METP121
2	2	Measurements & Welding	METP122
2	2	Castings	METP123
-	2	Engineering Materials	METP124
-	2	Metallic Alloys	METP125
3	-	Engineering Drawing 2D	METP126
3	-	Engineering Drawing 3D	METP127
6	-	Advanced Workshops	METP128
2	1	Electricity Technology	METP129
2	1	Strength of Material	METP130
-	-	Summer Training	METP131
<b>Total theoretical and practical hours</b>	<b>60</b>		
<b>Total units</b>	<b>60</b>		





## 8 .Expected learning outcomes of the program

### Knowledge

- 1 -Clarifying the theoretical information of mechanical forces resulting during operational operations.
- 2 -Identify methods of manufacturing and calculations of spare parts.
- 3 -Study the changes in mechanical forces on welded and fabricated parts, methods of manufacturing them, and appropriate engineering materials.
- 4- Identifying the mechanical machines in the department's workshops and laboratories

### Skills

The subject aims to graduate qualified personnel to work in operation, maintenance and construction:

- 1-Study mechanical devices and learn how to operate and maintain them.
- 2 - Study of devices for measuring the mechanical properties of metals and alloys.
- 3 – Familiarity with industrial drawings, maps and plans and using the AutoCAD program to implement them.
- 4-Using computer technology and the Internet within the field of specialization.

#### Emotional and value aims

C1 - Attention: - Arousing students' attention by implementing one of the applied programs on the display screen.

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3 - Interest: - Following up on the interest of the student who interacted most with the presented material, increasing this interaction by requesting other programs and applications to display it.

C4- Forming the direction: - meaning that the student is sympathetic to the presentation and may have an opinion towards the presented topic and defend it.



1- Name of university	Northern Technical university
2- Name of Department	Electronics techniques
3-Name of academic program	Mechanical techniques
4- Name of Final certificate	Technical Diploma / Study

	period is two calendar years equivalent to three academic years
5-Study system	Courses
6-Accredited Academic Program	ABET
7- Other external influences	1-There Is A Close Relationship Between The Department's Output And The Labor Market, And A Market Opinion Is Taken To Create Curriculum Study . 2-Continuous Follow-Up Of The Curricula Of Industry Prep For The Purpose Of Matching is Outputs To Fit The Continuity Of The Vocabulary Of The Section
8- Description creation date	1/4/2024
9- Academic Program Objectives:	
1- Graduating qualified technical staff to operate mechanical machines and manufacture spare parts and be a link between the specialist and the worker	
2- To contribute to the preparation of operating cards, whether for workshops or mechanical machines, and according to operating elements	
3- Familiarity with drawings, maps and industrial plans	
4- Contribute to the repair of damaged mechanical parts and conduct laboratory	
5- Carry out preventive and periodic maintenance of mechanical machines	
10- Required program outcomes and methods of teaching, learning and assessment	
A- Cognitive aims	
A1- Clarify the theoretical information of mechanical forces generated during operational processes	
A2- Learn about manufacturing methods and accounts for spare parts	
A3- Studying changes in mechanical forces on welded and manufactured parts, manufacturing methods, and appropriate engineering materials	
A4- Learn about mechanical machines in the workshops and laboratories of the department	

<p><b>B-Subject-specific skills.</b></p> <p>The topic aims to graduate qualified cadres to work in the operation, maintenance and construction :</p> <p>B1 - Study mechanical devices and learn how to operate and maintain them</p> <p>B 2 - Study of devices for measuring the mechanical properties of metals and alloys.</p> <p>B3 - Familiarity with industrial drawings, maps and plans and using AutoCAD software to implement them.</p> <p>B4- The use of computer technology and the Internet within the field of competence.</p>
<p><b>Teaching and learning methods</b></p> <p>The following methods are followed</p> <p>Theoretical lecture (with various means of explanation) By using Google class room and YouTube and Google meet and others , practical lecture (with various means of explanation), workshops (with various means of explanation), presentation of scientific films, seminars for students, student research, scientific reports, scientific visits, summer training.</p>
<p><b>Evaluation methods</b></p> <p>The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam in turn</p>
<p><b>C- Emotional and value aims.</b></p> <p>C1- Attention/ Attracting students' attention by implementing an application program on the display screen.</p> <p>C2 – Response/ Follow up the student's interaction with the material displayed on the screen.</p> <p>C3- interest/ Follow up the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to be presented.</p> <p>C4- Direction configuration/ meaning that the student is sympathetic to the</p>
<p><b>D- Transferred general and rehabilitative skills (other skills related to employability and personal development)</b></p> <p>D 1- Welding</p> <p>D 2- Plumbing</p> <p>D 3- Turning</p> <p>D 4- The refrigerator</p> <p>D 5- Search on the Internet</p>
<p><b>Teaching and learning methods</b></p> <p>Lecture style, workshop, computer simulation, summer training</p>

### Evaluation methods

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

### 11-program structure

Educational level	Subject or course code	Name of department	Credit hours	
		Mechanical Department	Practice	Theoretic
First stage			13	20
Second stage			11	21

### 12-Planning for personal development

Specialized courses, scientific symposium, seminars, scientific developments, research, scientific conferences

### 13- Acceptance standard (setting regulations related to college or institute enrollment)

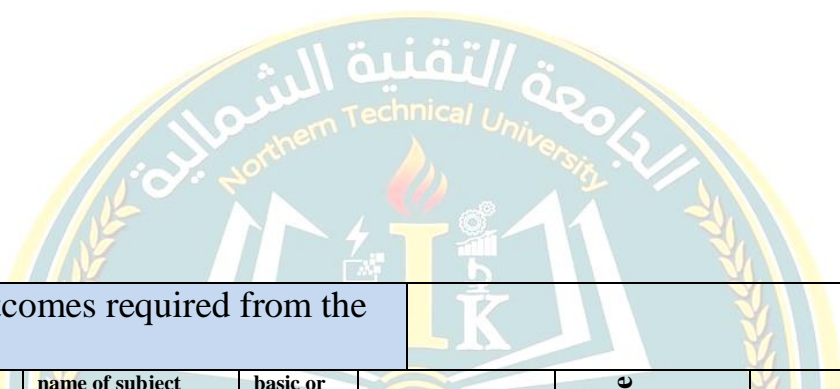
- 1)The total degree that the student obtained after passing the general exams for the sixth .
- 2) To be a graduate of the scientific or industrial branch (specializing in electronics or computer maintenance and assembly).
- 3) The results of the medical examination that the student is healthy and fit to study in the department.
- 4)-Desire

### 14-The most important references of information about the program

- Websites of Iraqi and foreign universities
- Workshops held by the Ministry of Higher Education in addition to the Ministry's standards
- Twinning with the University of Oklahoma
- The American Academic Accreditation Program ABET
- IEEE Computer Engineering Body of Knowledge

### Curriculum Skills Outline

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



Learning outcomes required from the program																
year	code of course	name of subject	basic or optional	cognitive aims				skill aims related to the program				Emotional and value goals				OTHER SKILLS RELATED TO employability and personal development
2023-2024				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
		Mechanics	basic	√	√	√	√	√	√	√	√	√	√	√	√	√
		Material properties	basic	√	√	√	√	√	√	√	√	√	√	√	√	√
		Workshops(1)	basic	√	√	√	√	√	√	√	√	√	√	√	√	√
		Manufacturing Processes	basic	√	√	√	√	√	√	√	√	√	√	√	√	√
		Engineering drawing	basic	√	√	√	√	√	√	√	√	√	√	√	√	√
		Computer application(1)	optional	√	√	√	√	√	√	√	√	√	√	√	√	√
		Electrical technology	optional	√	√	√	√	√	√	√	√	√	√	√	√	√
		Mathematics	optional	√	√	√	√	√	√	√	√	√	√	√	√	√
		Human rights	optional	√	√	√	√	√	√	√	√	√	√	√	√	√
		English	optional	√	√	√	√	√	√	√	√	√	√	√	√	√
				Machine Parts	basic	√	√	√	√	√	√	√	√	√	√	√
		Metallurgy	basic	√	√	√	√	√	√	√	√	√	√	√	√	
		Industrial	basic	√	√	√	√	√	√	√	√	√	√	√	√	



		<b>drawing</b>														
		<b>Manufacturing Processes(2)</b>	<b>basic</b>	√	√	√	√	√	√	√	√	√	√	√	√	√
		<b>Workshops</b>	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√	√
		<b>Computer application</b>	<b>Optiona</b>	√	√	√	√	√	√	√	√	√	√	√	√	√
		<b>Management &amp; Vocational safety</b>	<b>Optionl</b>	√	√	√	√	√	√	√	√	√	√	√	√	√
		<b>Project</b>	<b>Optiona</b>	√	√	√	√	√	√	√	√	√	√	√	√	√
		<b>English</b>	<b>Optiona</b>	√	√	√	√	√	√	√	√	√	√	√	√	√



## COURSE DESCRIPTION FORM

Description Course: - Manufacturing Processes(1) Manufacturing Processes(2 (first stage)

**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Manufacturing Processes(1) METP122 Manufacturing Processes(2)METP123
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2024-2023
6-Total number of hours of study	120hours in the year (4 hours in week)
7-Description creation date	2024/4/3
<b>8- Academic Program Objectives:</b> Graduating an intermediate cadre capable of working in the fields of manufacturing and production and contributing to the following businesses: 1- The ability to analyze operations into operating elements. 2- Preparing the technology between the production units 3- Determining the elements of control and quality control. 4- Make preliminary calculations for operating costs	
<b>9-Course outcomes and methods of teaching, learning and assessment</b> <b>A- Cognitive goals</b> A1- Identifying metal production processes and their types. A2- Understand the formation of minerals and the theory of formation. A3- Learn about metal fabrication methods	
<b>B - Subject-specific skill objectives</b> B 1- The ability to produce in the fields of manufacturing and production. B 2- The ability to work on the group for the purpose of completing the work	
<b>Teaching and learning methods</b> The theoretical lecture (with various means of explanation), the google class room, the practical lecture (with various means of explanation), scientific reports. google meet. Department's YouTube.	

Evaluation methods
<p>The work of the year, which includes:</p> <ol style="list-style-type: none"> <li>1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research</li> <li>2) the first semester exam,</li> <li>3) the second semester exam,</li> <li>4 )The final exam in turn</li> </ol>
<p><b>Emotional and value aims</b></p> <ol style="list-style-type: none"> <li>1-The student listens carefully to the teacher's explanation</li> <li>2-That the student cares about calm and the order of the class</li> <li>3-That the student recognize the importance of learning the material, manufacturing processes, and its relationship to engineering techniques</li> </ol>
<p><b>B- Transferred general and rehabilitative skills (other skills related to employability and personal development)</b></p> <div style="text-align: right;"> <p>B1- Welding</p> <p>B 2- Plumbing</p> <p>B 3- Turning</p> <p>B 4- The refrigerator</p> </div> <p>B 5- Search on the Internet</p>
<p><b>Teaching and learning methods.</b></p> <p>Lecture style, workshop, computer simulation, summer training</p>
<p><b>Evaluation methods</b></p> <p><b>The work of the year, which includes:</b></p> <ol style="list-style-type: none"> <li>1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research,</li> <li>2) the first semester exam, 3) the second semester exam, 4 The final exam in turn</li> </ol>

## 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	4	Manufacturing Processes(1)	Mechanical department	Theoretical + practical	oral exams

11-Infrastructure	
1-Required references books	1-introduction to production engineering Written by - Hassan Hussein (Fahmy, Jalal Shawky (1966) 2-Principles of Metal Casting Translation - Dr. Salah Al-Din Muhammad Al-Muhanni
2- Main References (Sources)	1-Metal forming methods Written by - Dr. Anwar Abdel Wahed (1963 2-Manufacturing Methods Written by Dr. Aref Abu Safiya, d. Abdul Razzaq Ismail Khader
3- Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research
12- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course	

1-Description Course: - Material Properties(1) Material properties  
(2)(first stage)

**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes**

**expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Material Properties(1) METP124 Material properties (2) METP125
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	60 hours in the year (2 hours in week)
7-Description creation date	2024/4/3
<b>8- Academic Program Objectives:</b>	
1- The ability to identify the properties of engineering materials 2- Prepare samples of these materials 3- Supervising the parts of the various manufacturing processes according to the engineering properties 4- Supervising operations and tests of engineering properties and crystalline and amorphous structures 5-The ability to supervise the measurement of engineering properties	
<b>9-Course outcomes and methods of teaching, learning and assessment</b>	
<b>Cognitive goals</b>	
1- Acquisition of theoretical and practical knowledge in various practical curricula in the field of mechanical engineering 2- Reading various diagrams and graphs in engineering disciplines 3-Carrying out accounts for various issues of competencehardness, toughness, yield point ..... etc)	
<b>Teaching and learning methods</b>	
The theoretical lecture (with various means of explanation), the google class room, scientific reports. google meet. Department's YouTube.	
<b>Evaluation methods</b>	
The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research	

- 2) the first semester exam,
- 3) the second semester exam,
- 4 )The final exam in turn

#### Emotional and value aims

- 1-The student listens carefully to the teacher's explanation
- 2-That the student cares about calm and the order of the clas
- 3-That the student recognize the importance of learning the specific material and its relationship to engineering techniques

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

- 1- Welding
- 2- Plumbing
- 3- Turning
- 4- The refrigerator
- 5- Search on the Internet

#### Teaching and learning methods.

Lecture style, workshop, computer simulation, summer training

#### Evaluation methods

The work of the year, which includes:

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

#### 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	2	Material Properties	Mechanical department	Theoretical	exams
11-Infrastructure					
1-Required references books			Principles of Metallurgical . Engineering		



	Bailey, translated by Dr. Hussein Bager
2- Main References (Sources)	Ignition of metals - technological foundations Written by - Abdel Moneim (Akef (1977
3-Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research

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



Description Course: - Mathematics(1) Mathematics(2) (first stage)

**This course description provides a brief summary of the most**

**important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Mathematics(1) TIKI110 Mathematics(2) TIKI111
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	60 hours in the year (2 hours in week)
7-Description creation date	2024/4/3
<b>8- Academic Program Objectives:</b>	
1-Types of logarithmic functions 2-Types of matrices and how to solve them 3-Types of vectors and their solutions 4-Derivatives and their forms 5-Integration and differentiation 6-The Seven Methods of Integration	
<b>9-Course outcomes and methods of teaching, learning and assessment</b>	
<b>Cognitive goals</b> 1- Learn about logarithmic functions and their types 2- Making use of matrices in the treatment of mathematical problems on the practical side 3-To develop a student's ability to solve complex problems	
<b>Teaching and learning methods</b>	
The theoretical lecture (with various means of explanation), the google class room, scientific reports. google meet. Department's YouTube.	
<b>Evaluation methods</b>	
The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic	

as the lecture, scientific reports, student seminars, student research  
 2) the first semester exam,  
 3) the second semester exam,  
 4 )The final exam in turn

#### Emotional and value aims

1-Develop a student's ability to find solutions to complex problems  
 2-Mathematics applications in reality  
 3-Using Matlab and linking them to math equations

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

1- Welding  
 2- Plumbing  
 3- Turning  
 4- The refrigerator

5- Search on the Internet

#### Teaching and learning methods.

Lecture style, workshop, computer simulation, summer training

#### Evaluation methods

The work of the year, which includes:

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

#### 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	2	Mathematics	Mechanical department	Theoretical	exams

--	--	--	--	--	--

11-Infrastructure	
1-Required references books	- Mathematics -Saad Al-Jumaily
2- Main References (Sources)	Thomas' Calculus ,7th Edition
3- Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research

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



Description Course: - Mechanics(1) Mechanics(2)(first stage)

**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes**

**expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Mechanics(1) METP120 Mechanics(2) METP121
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	120 hours in the year (4 hours in week)
7-Description creation date	2024/4/3
8- Academic Program Objectives:	
1- Provide basic definitions and introductory concepts to statistics and dynamics 2-Give a review of vector analyses 3 -Giving the principles of the force system in two and three dimensions and the kinetics of particles and the solid body in two and three dimensions 4-Explanation of Newton's laws for the equilibrium of particles and the solid body in two and three dimensions and the kinetics of particles in two and three dimensions and the solid body in two dimensions.	
9-Course outcomes and methods of teaching, learning and assessment	
Cognitive goals	
1-Understand the methods of calculating the force system 2-Analyze the balance of the body and structures 3-Analyze and understand the procedures for calculating the center and center of gravity of a body and the second moment of area and mass 4-Understand the methods of kinetic investigation of particles and solid bodies 5-Understand the kinetic investigation methods of particles and solid bodies 6-The ability to apply modern knowledge and apply mathematics, science, engineering and technology to problems and applications of engineering mechanics Work in groups and work in multidisciplinary teams 7-	
Teaching and learning methods	

The theoretical lecture (with various means of explanation), the google class room, the practical lecture (with various means of explanation), scientific reports. google meet. Department's YouTube.	
Evaluation methods	
<p>The work of the year, which includes:</p> <ol style="list-style-type: none"> <li>1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research</li> <li>2) the first semester exam,</li> <li>3) the second semester exam,</li> <li>4 )The final exam in turn</li> </ol>	
Emotional and value aims	
<ol style="list-style-type: none"> <li>1-Develop a student's ability to calculate the types of forces</li> <li>2-Developing the capabilities of the science student into an application technology</li> <li>3-Understand and develop professional, social and ethical responsibilities</li> <li>4-Ensuring effective communication</li> </ol>	
Transferred general and rehabilitative skills (other skills related to employability and personal development)	
<ol style="list-style-type: none"> <li>1- Welding</li> <li>2- Plumbing</li> <li>3- Turning</li> <li>4- The refrigerator</li> <li>5- Search on the Internet</li> </ol>	
Teaching and learning methods.	
Lecture style, workshop, computer simulation, summer training	
Evaluation methods	
<p>The work of the year, which includes:</p> <ol style="list-style-type: none"> <li>1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research,</li> <li>2) the first semester exam, 3) the second semester exam, 4 The final exam in turn</li> </ol>	



## 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	4	Mechanics	Mechanical department	Theoretical + practical	exams

## 11-Infrastructure

1-Required references books	1-Lecture Notes Powerpoint files ((available at the course website  2- Beer, F. P. and Johnston, E. R. Vector Mechanics for Engineers: Statics and Dynamics, TATA McGraw-Hill
2- Main References (Sources)	1-Lecture Notes Powerpoint files ((available at the course website  2-Beer, F. P. and Johnston, E. R. Vector Mechanics for Engineers: Statics and Dynamics, TATA McGraw-Hill
Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research
12- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course	

Description Course: - Computer Principles (1) (first stage)

**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes**

**expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Computer Principles (1) NTU102 Computer Principles
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	30 hours in the year (2hours in week)
7-Description creation date	2024/4/3
<b>8- Academic Program Objectives:</b>	
1-Introducing the student to the basic introductory operations of computers: their generations, their components 2-Introducing the student to the computer operating system 3-Teaching the student how to use the calculator and apply programs 4-Introduce the student to software 5-Teaching the student to implement the program using the calculator 6-Learn about the parts of the calculator and its accessories	
<b>9-Course outcomes and methods of teaching, learning and assessment</b>	
<b>Cognitive goals</b>	
1- The student will be familiar with the parts and accessories of the calculator 2-That the student understand how to operate the calculatorw 3-That the student learns to implement the program 4-The student should distinguish between computer programs 5-The student understands the implementation of the program 6-The student should be familiar with the computer operating systems	
<b>Teaching and learning methods</b>	
The theoretical lecture (with various means of explanation), the google class room, the practical lecture (with various means of explanation), scientific reports. google meet. Department's YouTube.	
<b>Evaluation methods</b>	
The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the	

<p>same topic as the lecture, scientific reports, student seminars, student research</p> <p>2) the first semester exam, 3) the second semester exam, 4 )The final exam in turn</p>
<p><b>Emotional and value aims</b></p> <p>1-The ability to deal with a calculator 2-Using Microsoft Office in a calculator 3-Knowing the specifications and features of different types of computers 4-Learn about computer programming methods</p>
<p><b>Transferred general and rehabilitative skills (other skills related to employability and personal development)</b></p> <p>1- Welding 2- Plumbing 3- Turning 4- The refrigerator 5- Search on the Internet</p>
<p><b>Teaching and learning methods.</b></p> <p>Lecture style, workshop, computer simulation, summer training</p>
<p><b>Evaluation methods</b> The work of the year, which includes:</p> <p>1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam in turn</p>

#### 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	2	Computer application(1)	Mechanical department	Theoretical + practical	exams

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

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



Description Course: - Electrical technology (first stage)

**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes**

**expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Electrical technology METP129
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	45 hours in the year (3hours in week)
7-Description creation date	2024/4/1
<b>8- Academic Program Objectives:</b>	
1-Helping the student to understand the laws and mathematical equations necessary for the purpose of analyzing electrical circuits 2-Helping the student to analyze the working mechanism of electrical circuits of both types in various ways 3-Helping the student to understand the mechanism of controlling electrical circuits of both types in various ways 4-Helping the student to understand the working mechanism of electronic circuits to convert electrical power as needed 5-Develop sound thinking methods and release the latent energies of the student and apply them in the engineering field	
<b>9-Course outcomes and methods of teaching, learning and assessment</b>	
<b>Cognitive goals</b>	
1- That the student understand the mechanism of electrical circuits according to their feeding 2-That the student distinguish between theories of electrical circuits 3-That the student uses more than one analysis circuit for different devices 4-That the student understand how to control electrical circuits 5-The student judges the validity of the conclusions he reaches 6-The student should be familiar with the computer operating systems	
<b>Teaching and learning methods</b>	
The theoretical lecture (with various means of explanation), the google class room, the practical lecture (with various means of explanation), scientific reports. google meet. Department's YouTube.	
<b>Evaluation methods</b>	

The work of the year, which includes:

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

#### Emotional and value aims

- 1-The student listens carefully to the teacher's explanation
- 2-That the student calmly care in the classroom
- 3-That the student knows the impact of science and scientists on life
- 4-The student should describe the importance of the material

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

- 1- Welding
  - 2- Plumbing
  - 3- Turning
  - 4- The refrigerator
- 5- Search on the Internet

#### Teaching and learning methods.

Lecture style, workshop, computer simulation, summer training

#### Evaluation methods The work of the year, which includes:

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

#### 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	3	Electrical technology	Mechanical department	Theoretical + practical	exams



11-Infrastructure	
1-Required references books	1-Introductory Circuit Analysis 2014 Robert Boytsted 2- Electrical technology 1975 .B.L. Theraja Basic electrical Technology , india
2- Main References (Sources)	Power electronic part 242 , Technically, faculty of K.A.S
Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research

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



Description Course: - Workshops(1) Workshops(2) (first stage)

**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Workshops(1) TIKI112 Workshops(2) METP128
4-Available forms of attendance	Laboratories
5-Course/year	2023-2024
6-Total number of hours of study	180 hours in the year (6 hours in week)
7-Description creation date	2024/4/1
<b>8- Academic Program Objectives:</b>	
1-Providing and qualifying the student with basic information in the engineering workshops subject 2-Familiarity with the operation and knowledge of the parts of the workshop (machines (turning, welding, and carpentry 3-Conducting practical exercises and how to use the number	
<b>9-Course outcomes and methods of teaching, learning and assessment</b>	
<b>Cognitive goals</b>	
1-Learn about the various methods and installation of the parts of the machines found in the workshops 2-Knowing how to deal with numbers, machines and their parts, as well as how to make measurements 3-The ability to optimally test the appropriate method of work among the above methods.	
<b>Teaching and learning methods</b>	
The theoretical lecture (with various means of explanation), the google class room, the practical lecture (with various means of explanation), scientific reports. google meet. Department's YouTube.	
<b>Evaluation methods</b>	
The work of the year, which includes:	

<p>1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research</p> <p>2) the first semester exam,</p> <p>3) the second semester exam,</p> <p>4 )The final exam in turn</p>
<p><b>Emotional and value aims</b></p> <p>1-Analyze, analyze and compare</p> <p>2-Accuracy of observation and depth of thinking</p> <p>3-The speed of information retrieval and the intuition of conclusion</p> <p>4-Speed and accuracy of decision-making</p> <p>5- Optimizing numerical values</p>
<p><b>Transferred general and rehabilitative skills (other skills related to employability and personal development)</b></p> <p>1- Welding</p> <p>2- Plumbing</p> <p>3- Turning</p> <p>4- The refrigerator</p> <p>5- Search on the Internet</p>
<p><b>Teaching and learning methods.</b></p> <p>Lecture style, workshop, computer simulation, summer training</p>
<p><b>Evaluation methods The work of the year, which includes:</b></p> <p>1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research,</p> <p>2) the first semester exam, 3) the second semester exam, 4 The final exam in turn</p>

#### 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	6	Workshops(1)	Mechanical department	practical	exams

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<b>11-Infrastructure</b>	
1-Required references books	Foundation Workshops / General Organization for Technical Education and Vocational Training / Kingdom of Saudi Arabia
2- Main References (Sources)	Principles of Production Operations/Dr. Qahtan behind Al-Khazraji
Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research

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



Description Course: - **Engineering drawing(1) Engineering drawing(2)**  
(first stage)

**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Engineering drawing(1) METP126 Engineering drawing(2) METP127
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	90 hours in the year (3 hours in week)
7-Description creation date	2024/1/7
<b>8- Academic Program Objectives:</b>	
1-Introducing the student to the importance of engineering drawing and its relationship with other engineering subjects 2-Develop the student's mental and motor abilities in drawing simple and complex shapes 3-Expanding the horizons of his imagination of geometric shapes and assemblies to identify their components, parts, mechanics and the principle of their work 4-Organizing the student's thought to develop a specific and sequential strategy for drawing, assembling and dismantling geometric shapes and parts of machines and equipment.	
<b>9-Course outcomes and methods of teaching, learning and assessment</b>	
<b>Cognitive goals</b>	
1-The student will know the importance of engineering drawing 2-The student learns how to imagine geometric shapes 3-The student should distinguish mechanical components and parts and their working principle	
<b>Teaching and learning methods</b>	
The theoretical lecture (with various means of explanation), the google class room, the practical lecture (with various means of explanation), scientific	

reports. google meet. Department's YouTube.

#### Evaluation methods

The work of the year, which includes:

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

#### Emotional and value aims

- 1-The student listens attentively to the teacher's explanation
- 2-That the student cares about calmness and class order
- 3-That the student recognize the importance of engineering drawing and its relationship with other engineering subjects

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

- 1- Welding
- 2- Plumbing
- 3- Turning
- 4- The refrigerator
- 5- Search on the Internet

#### Teaching and learning methods.

Lecture style, workshop, computer simulation, summer training

#### Evaluation methods The work of the year, which includes:

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

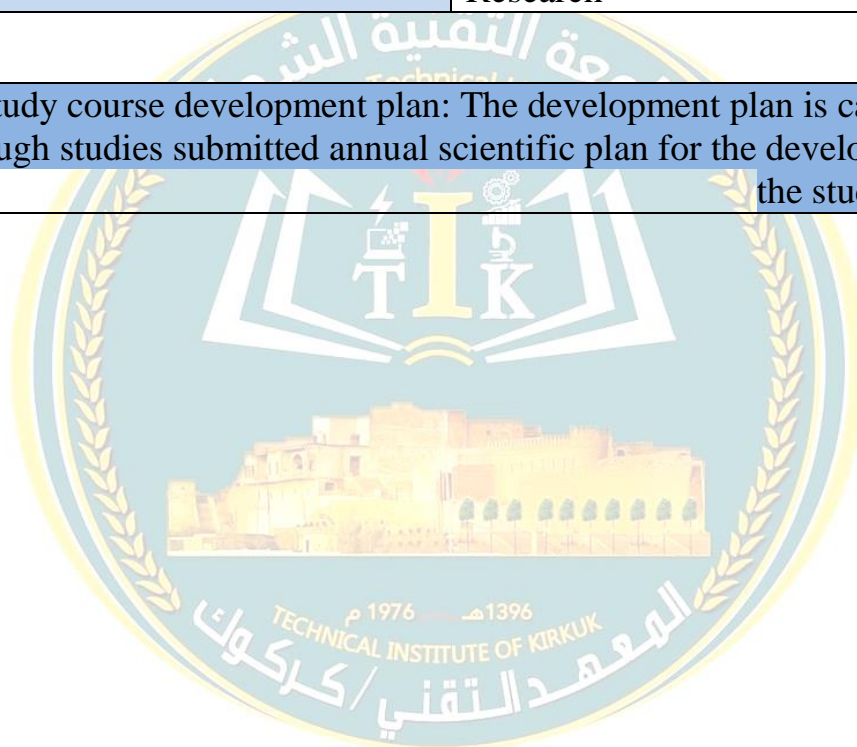
#### 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
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Weekly	3	Engineering drawing	Mechanical department	practical	exams

11-Infrastructure	
1-Required references books	Engineering Drawing - Abdul Rasoul Al Khafaf
2- Main References (Sources)	Internet and books
Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research

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



Description Course: - **Humans Rights and Democracy** (first stage)



**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Humans Rights and Democracy NTU100
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	30 hours in the year (2 hours in week)
7-Description creation date	2024/4/7
<b>8- Academic Program Objectives:</b>	
1-Introducing the principles of human rights 2-Learn about the historical development of human rights 3-Introducing human rights to the monotheistic religions 4-Recognizing human rights in international constitutions 5-Get to know the universal declarations of human rights	
<b>9-Course outcomes and methods of teaching, learning and assessment</b>	
<b>Cognitive goals</b>	
1-Identify the most important features of modern trends in human rights 2-Identifying the objective reasons for the emergence of human rights principles 3-Knowing the importance of the types of rights 4-A comparison between the factors of the historical development of human rights 5- Knowing the importance of studying law 6-Recognize the hierarchy of rights	
<b>Teaching and learning methods</b>	
The theoretical lecture (with various means of explanation), the google class room,o scientific reports. google meet. Department's YouTube.	
<b>Evaluation methods</b>	
The work of the year, which includes:	

<p>1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research</p> <p>2) the first semester exam,</p> <p>3) the second semester exam,</p> <p>4 )The final exam in turn</p>
<p><b>Emotional and value aims</b></p> <p>1- The student listens carefully to the teacher's explanation</p> <p>2-That the student cares about calmness and class order</p> <p>3-The student should know the impact of science and scientists on life</p> <p>4-Describe the importance of human rights</p>
<p><b>Transferred general and rehabilitative skills (other skills related to employability and personal development)</b></p> <p>1- Welding</p> <p>2- Plumbing</p> <p>3- Turning</p> <p>4- The refrigerator</p> <p>5- Search on the Internet</p>
<p><b>Teaching and learning methods.</b></p> <p>Lecture style, workshop, computer simulation, summer training</p>
<p><b>Evaluation methods The work of the year, which includes:</b></p> <p>1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research,</p> <p>2) the first semester exam, 3) the second semester exam, 4 The final exam in turn</p>

#### 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	2	Human rights	Mechanical department	Theoretical	exams

11-Infrastructure	
1-Required references books	An overview of human rights
2- Main References (Sources)	United Nations Books
Recommended books and references (scientific journals, reports)	Human rights under Iraqi, Arab and international laws  The virtual library of the Ministry of Higher Education and Scientific Research

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



Description Course: - **Metallurgy(1) Metallurgy(2)** (second stage)

**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Metallurgy(1) METP216 Metallurgy(2) METP217
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	120 hours in the year (4 hours in week)
7-Description creation date	2024/4/7
<b>8- Academic Program Objectives:</b>	
1-Providing the student with theoretical information related to the subject (metal) 2-(Getting to know the devices for checking (metal ) 3-Operating devices to know the mechanical properties and conducting .practical experiments	
<b>9-Course outcomes and methods of teaching, learning and assessment</b>	
<b>Cognitive goals</b>	
1- Providing the student with theoretical information related to the subject (metal) 2- Introducing the student to the scientific laboratory equipment 3- Introduce the student to the methods of measuring mechanical properties 4- Carrying out special calculations by examining and finding the values of (.hardness, toughness, yield point.....etc	
<b>Teaching and learning methods</b>	
T The theoretical lecture (with various means of explanation), the google class room, the practical lecture (with various means of explanation), .scientific reports. google meet. Department's YouTube	
<b>Evaluation methods</b>	
The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the	

<p>same topic as the lecture, scientific reports, student seminars, student research</p> <p>2) the first semester exam, 3) the second semester exam, 4 )The final exam in turn</p>
<p><b>Emotional and value aims</b></p> <p>1- The student listens carefully to the teacher's explanation 2-That the student cares about calmness and class order 3-The student should know the impact of science and scientists on life 4-Describe the importance of human rights</p>
<p><b>Transferred general and rehabilitative skills (other skills related to employability and personal development)</b></p> <p>1- Welding 2- Plumbing 3- Turning 4- The refrigerator 5- Search on the Internet</p>
<p><b>Teaching and learning methods.</b></p> <p>Lecture style, workshop, computer simulation, summer training</p>
<p><b>Evaluation methods The work of the year, which includes:</b></p> <p>1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam in turn</p>

#### 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	4	Metallurgy	Mechanical department	Theoretical + practical	exams

#### 11-Infrastructure

1-Required references books	Introduction to Production Engineering, written by Hassan Hussein Fahmy. Jalal (Shawky(1966)
2- Main References (Sources)	- Principles of Metal Casting, translation - Dr. Salah Al-Din Muhammad Al-Muhanni
Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research

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



Description Course: - Manufacturing Processes(1) Manufacturing Processes(2) (secondstage)

**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Manufacturing Processes(1) METP212 Manufacturing Processes(2) METP213
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	120 hours in the year (4 hours in week)
7-Description creation date	2024/4/7
8- Academic Program Objectives:	
1- A graduate of an intermediate cadre who is able to work in the fields of manufacturing and production to contribute 2-Ability to analyze manufacturing processes into operating items 3-Enumerate the technological path between production units 4-Preparing operating cards and orders for each unit and each machine, calculating the operating time and downloading programs for the units 5-Determining the elements of control and quality control 6-Make preliminary calculations for operating costs	
9-Course outcomes and methods of teaching, learning and assessment	
Cognitive goals	
1-Learn about the production and manufacture of metals and their types 2-Learn about metal formation and formation theory 3-Learn about metal fabrication methods	
Teaching and learning methods	
The theoretical lecture (with various means of explanation), the google class room, the practical lecture (with various means of explanation), scientific reports. google meet. Department's YouTube.	
Evaluation methods	



The work of the year, which includes:

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

#### Emotional and value aims

- 1- Building a technological path between production units
- 2-The use of basic equipment in the manufacturing process
- 3-Knowing the specifications and features of metal cutting
- 4-Identifying the types of minerals and some components and implementing them

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

- 1- Welding
- 2- Plumbing
- 3- Turning
- 4- The refrigerator
- 5- Search on the Internet

#### Teaching and learning methods.

Lecture style, workshop, computer simulation, summer training

#### Evaluation methods The work of the year, which includes:

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

#### 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	4	Manufacturing Processes(2)	Mechanical department	Theoretical + practical	exams

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11-Infrastructure	
1-Required references books	1-An introduction to production engineering 2-Production engineering technology and dimensional design
2- Main References (Sources)	Metalworking books Metal Forming Books Scientific reports on the Internet
Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research

12- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course
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Description Course: - Design of Machines (1) Design of Machines (2)  
(secondstage)

**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Design of Machines (1) METP210 Design of Machines (2) METP211
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	60 hours in the year (2 hours in week)
7-Description creation date	2024/4/7
<b>8- Academic Program Objectives:</b>	
1-Explaining the importance of studying engine parts 2-Derivation of mathematical formulas that govern the movement of engine parts 3-Develop the student's ability and ability to translate academic information into practice	
<b>9-Course outcomes and methods of teaching, learning and assessment</b>	
<b>Cognitive goals</b>	
1- Studying the basic concepts of engines 2-Learn the characteristics of engine parts 3-Learn about the laws of controlling the movement of motors	
<b>Teaching and learning methods</b>	
The theoretical lecture (with various means of explanation), the google class room, scientific reports. google meet. Department's YouTube.	
<b>Evaluation methods</b>	
The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the	

<p>topic of the previous lecture, oral exams during the lecture with the same topic</p> <p>as the lecture, scientific reports, student seminars, student research</p> <p>2) the first semester exam,</p> <p>3) the second semester exam,</p> <p>4 )The final exam in turn</p>
<p><b>Emotional and value aims</b></p> <p>1-Building a technological path between engine parts</p> <p>2-The use of basic devices in the movement of motors</p> <p>3-Know the specifications and features of the engine parts</p> <p>4-Identifying the types of engines and some components and their implementation</p>
<p><b>Transferred general and rehabilitative skills (other skills related to employability and personal development)</b></p> <p>1- Welding</p> <p>2- Plumbing</p> <p>3- Turning</p> <p>4- The refrigerator</p> <p>5- Search on the Internet</p>
<p><b>Teaching and learning methods.</b></p> <p>Lecture style, workshop, computer simulation, summer training</p>
<p><b>Evaluation methods The work of the year, which includes:</b></p> <p>1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research,</p> <p>2) the first semester exam, 3) the second semester exam, 4 The final exam in turn</p>

#### 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	2	Machine Parts	Mechanical department	Theoretical	oral exams

11-Infrastructure	
1-Required references books	Machine parts Zablonski ,V. Dobrovolsky fishmonger,
2- Main References (Sources)	Metalworking books Metal Forming Books Scientific reports on the Internet
Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research

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

Description Course: - Computer application(1) Computer application(2)  
(secondstage)

**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Computer application(2) METP201
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	60 hours i (3 hours in week)
7-Description creation date	2024/4/7
<b>8- Academic Program Objectives:</b>	
1-Introduce the student to the concept of the Internet 2-Introducing the student to networks and their types 3-Introduce the student to flowcharts and algorithms 4-Introducing the student to the language of visual basic 5-Introduce the student to the use of important keys in the program	
<b>9-Course outcomes and methods of teaching, learning and assessment</b>	
<b>Cognitive goals</b>	
1-To familiarize the student with the concept of the Internet 2-That the student understand how to distinguish between Internet networks 3-The student learns the technique of drawing using the program visual basic 4-That the student knows how to search for and access information	
<b>Teaching and learning methods</b>	
The theoretical lecture (with various means of explanation), the google class room, the practical lecture (with various means of explanation), scientific reports. google meet. Department's YouTube.	
<b>Evaluation methods</b>	
The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research 2) the first semester exam,	

3) the second semester exam, 4 )The final exam in turn
<b>Emotional and value aims</b> 1-The student listens attentively to the teacher's explanation 2-That the student cares about calmness and class order 3-That the student knows the impact of science and scientists on life
<b>Transferred general and rehabilitative skills (other skills related to employability and personal development)</b>          1- Welding 2- Plumbing 3- Turning 4- The refrigerator  5- Search on the Internet
<b>Teaching and learning methods.</b> Lecture style, workshop, computer simulation, summer training
<b>Evaluation methods</b> The work of the year, which includes: 1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam in turn

#### 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	2	Computer application(2)	Mechanical department	Theoretical + practical	Exams

<b>11-Infrastructure</b>	
1-Required references books	online books
2- Main References (Sources)	Visual Basic Asmaa Abdul Jalil Shaima Ali Kazem -



Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research
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12- Study course development plan: The development plan is carried out through studies submitted annual scientific plan for the development of the study course



Description Course: - Industrial drawing(1) - Industrial drawing(2)  
(secondstage)

**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Industrial drawing(1) METP218 Industrial drawing(2) METP219
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	90 hours in the year (3 hours in week)
7-Description creation date	2024/4/7
<b>8- Academic Program Objectives:</b>	
1-Introducing the student to the basics of industrial drawing so that the student can translate the engineering drawings he faces	
2-Teaching students how to draw electronically .	
3- Preparing students to learn mechanical drawing for the second stage .	
<b>9-Course outcomes and methods of teaching, learning and assessment</b>	
<b>Cognitive goals</b>	
1-Learn about industrial drawing and how it works	
2-Benefiting from industrial drawings for projects	
<b>Teaching and learning methods</b>	
The theoretical lecture (with various means of explanation), the google class room, the practical lecture (with various means of explanation), scientific reports. google meet. Department's YouTube.	
<b>Evaluation methods</b>	
The work of the year, which includes:	
1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research	
2) the first semester exam,	
3) the second semester exam,	
4 )The final exam in turn	

<b>Emotional and value aims</b>
1- The student listens carefully to the teacher's explanation 2-That the student cares about calm and the order of the class 3-That the student recognize the importance of industrial drawing and its relationship with other engineering materials
<b>Transferred general and rehabilitative skills (other skills related to employability and personal development)</b>
1- Welding 2- Plumbing 3- Turning 4- The refrigerator 5- Search on the Internet
<b>Teaching and learning methods.</b>
Lecture style, workshop, computer simulation, summer training
<b>Evaluation methods The work of the year, which includes:</b>
1-the exam at the beginning of the lecture using Google forms and includes the topic of the previous lecture, oral exams during the lecture with the same topic as the lecture, scientific reports, student seminars, student research, 2) the first semester exam, 3) the second semester exam, 4 The final exam in turn

#### 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	3	Industrial drawing	Mechanical department	practical	Exams

#### 11-Infrastructure

1-Required references books	Manual of engineering drawing - Simmons C.H., .Maguire D. E
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2- Main References (Sources)	Manual of engineering drawing - Simmons C.H., Maguire D. E
Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research

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



Description Course: Industrial Management (secondstage)

**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Industrial Management METP222
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	30 hours in the year (2hours in week)
7-Description creation date	2024/4/7
8- Academic Program Objectives:	
1-Familiarize yourself with the scientific methods and means of occupational management and safety 2-Achieving the best possible settlement of resources within the limits of time, cost and availability of resources 3-Learn about the scientific methods of financial planning for the project 4-Learn about special scientific methods and methods of evaluating alternatives to choose the best alternative	
9-Course outcomes and methods of teaching, learning and assessment	
Cognitive goals	
1- The student learns about the most important means and methods of construction management 2-Familiarize students with how to plan and schedule projects 3-The student knows how to reach the best settlement of resources 4-The student learns how to plan financially for the project and forecast cash flow 5-The student learns how to evaluate alternatives and make economic comparisons 6-The student learns how to calculate depreciation by different methods	
Teaching and learning methods	
The theoretical lecture (with various means of explanation), the google class room, scientific reports. google meet. Department's YouTube.	

## Evaluation methods

The work of the year, which includes:

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

## Emotional and value aims

- 1-Develop the student's ability to work on the duties and complete them on the due date
- 2-Trying to apply concepts by solving different types of exercises
- 3-Develop the student's ability to dialogue and discussion

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

- 1- Welding
- 2- Plumbing
- 3- Turning
- 4- The refrigerator

5- Search on the Internet

## Teaching and learning methods.

Lecture style, workshop, computer simulation, summer training

## Evaluation methods The work of the year, which includes:

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

## 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	2	Management & Vocational safety	Mechanical department	Theoretical	Exams

11-Infrastructure	
1-Required references books	1-Principles of Construction Management by:Roy Pilcher 2-Modren Construction .Management by :F.Harris
2- Main References (Sources)	1-Construction planning ,Equipment and Methods 2.Critical Path Method in Construction Practice by:Antill 3.Engineering Economy by De Garms
Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research

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

Description Course: - Workshops(3) Workshops(4) (first stage)



**This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities.**

1-Name of university	Northern Technical university
2-Name of Department	Mechanical techniques
3-Name of subject	Workshops(3) METP214 Workshops(4) METP215
4-Available forms of attendance	In the lecture hall and laboratories
5-Course/year	2023-2024
6-Total number of hours of study	180 hours in the year (6 hours in week)
7-Description creation date	2024/4/7
<b>8- Academic Program Objectives:</b>	
1-Providing and qualifying the student with basic information in the engineering workshops subject 2-Familiarity with the operation and knowledge of the parts of the workshop (machines (turning, welding, and carpentry 3-Conducting practical exercises and how to use the number	
<b>9-Course outcomes and methods of teaching, learning and assessment</b>	
<b>Cognitive goals</b> 1-Learn about the various methods and installation of the parts of the machines found in the workshops 2-Knowing how to deal with numbers, machines and their parts, as well as how to make measurements 3-The ability to optimally test the appropriate method of work among the above methods.	
<b>Teaching and learning methods</b>	
The theoretical lecture (with various means of explanation), the google class room, the practical lecture (with various means of explanation), scientific reports. google meet. Department's YouTube.	
<b>Evaluation methods</b>	
The work of the year, which includes:	

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

#### Emotional and value aims

- 1-Analyze, analyze and compare
- 2-Accuracy of observation and depth of thinking
- 3-The speed of information retrieval and the intuition of conclusion
- 4-Speed and accuracy of decision-making
- 5- Optimizing numerical values

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

- 1- Welding
- 2- Plumbing
- 3- Turning
- 4- The refrigerator
- 5- Search on the Internet

#### Teaching and learning methods.

Lecture style, workshop, computer simulation, summer training

#### Evaluation methods The work of the year, which includes:

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

#### 10- structure of subject

Weeks	Hours	Required learning outcomes	name / course or topic	education method	Evaluation method
Weekly	6	Workshops(2)	Mechanical department	practical	exams

11-Infrastructure	
1-Required references books	Foundation Workshops / General Organization for Technical Education and Vocational Training / Kingdom of Saudi Arabia
2- Main References (Sources)	Principles of Production Operations/Dr. Qahtan behind Al-Khazraji
Recommended books and references (scientific journals, reports)	The virtual library of the Ministry of Higher Education and Scientific Research

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

