Ministry of Higher Education

Scientific Supervision and Evaluation System

Department of Quality Assurance and Academic Accreditation

Accreditation Department

University Name: Northern Teknepa
College/ Institute: Technical Institute/Kirkuk
Scientific Department: Department of Mechanical Technologies/Production

Description of the academic program and course of the Mechanical Techniques Department/Production Branch

Academic Year 2024-2025

وصف البرنامج الأكاديمي

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

Academic Program Description Form for Colleges and Institutes

University Name: Northern Technical University

College/Institute: Kirkuk Technical Institute

Scientific Department: Mechanical Techniques / Production.

Name of academic or professional program: Technical Diploma

Name of final certificate: Technical Diploma

Study system: Courses

Description preparation date: / /2025

File filling date: / /2025

الدكتور
صواش شاهين ابراهيم
معاون العميد للشوؤن العلمية

Signature:

Name of Head of Department: Mahmood. H. Khaleel

Date:

Signature:

Scientific Assistant Name:

Date:

File checked by
Quality Assurance and University Performance Division
Quality Assurance and University Performance Division Head: Assist.Lecturer.. Alaa Abdulwahhab Azeez Baker
Date:
Signature:

Approval of the Dean
Prof. Dr. Ashti Mahdi Aref

Academic Program Description

1.pogram vision
The Technical Institute/ Kirkuk seeks to prepare graduates in the field of mechanical technologies to work in government departments, factories, government companies and the private sector and to benefit from the competence in the practical and applied field

2.Program Mission
Preparing and graduating leading scientific and leadership competencies in the field of mechanical technologies/ production and in developing the knowledge balance in the field of scientific research in the field of scientific disciplines to serve the local, regional and international community as well as training and refining the minds of students scientifically and cognitively, emphasizing social and cultural values and responding to the requirements of the local market.

3.Program Objectives:
The department aims to: a) Graduation of qualified technical talents to carry out the operation of mechanical machines and the manufacture of spare parts and be a link between the specialist and the worker. B) Contribute 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 the repair of damaged mechanical parts and conduct laboratory tests to find a solution. e) Carrying out preventive and periodic maintenance of mechanical machines. Mechanical in the workshops and laboratories of the department.

3.Program Accreditation
The program accreditation of the Ministry of Higher Education and Scientific Research has been studied and planned to complete its requirements and now the department is in the stage of submitting the accreditation application

5.Other external influences
1-There is a close relationship between the outputs of the department and the labor market, and the opinion of the labor market is taken in the curricula. 2-The curricula of industry preparatory schools are continuously monitored for the purpose of matching their outputs to suit the continuity of the department's vocabulary.

6. Program Structure

seq	The structure of the Education Programme	Number of units	Details	Nos.	Percentage
1	University Requirements	16 December	Compulsory Units	18	16.4%
			Optional Modules	2	
2	Institute Requirements	7-12%	Compulsory Units	17	17.2%
			Optional Modules	4	
3	Department Requirements	65 - 80 %	Compulsory Units	67	66.4%
			Optional Modules	14	
Total for Graduation Requirements		111	TOTAL UNITS	102	
			TOTAL UNITS	20	
			TOTAL UNITS	122	

7.1Program Description

Academic year/ Level	Course Code	Course Name in English	Course Name in Arabic	Credit Hours	
				Theoretical	Practical
Level 1 2024-2025	NTU100	Human rights and democracy (compulsory)	حقوق الانسان والديمقراطية (إجباري)	2	-
	NTU101	English 1	لغة انكليزية 1 (إجباري)	2	-
	NTU102	Computer / 1 (Mandatory)	الحاسوب / 1 (إجباري)	1	1
	NTU103	[Arabic]	اللغة العربية (اختياري)	2	-
	NTU104	Sports (optional)	الرياضة (اختياري)	1	1
	TIKI110	Math (1)	رياضيات 1 (اجباري)	2	-
	TIKI111	Math (2)	رياضيات 2 (اجباري)	2	-
	TIKI112	Geometric Drawing 1 (Mandatory)	رسم هندسي 1 (اجباري)	-	3
	TIKI113	Workshop 1 (Mandatory)	ورشة 1 (اجباري)	-	6
	METP120	Mechanical 1 (Compulsory)	ميكانيك 1 (اجباري)	2	2
	METP121	Mechanical 2 (Compulsory)	ميكانيك 2 (اجباري)	2	2
	METP122	Manufacturing Operations 1 (Mandatory)	عمليات تصنيع 1 (اجباري)	2	2
	METP123	Manufacturing Operations 2 (Mandatory)	عمليات تصنيع 2 (اجباري)	2	2
	METP124	Items Properties 1 (Mandatory)	خواص مواد 1 (اجباري)	2	-
	METP125	Properties of Articles 2 (Mandatory)	خواص مواد 2 (اجباري)	2	-
	METP126	Engineering Drawing 2 (Mandatory)	الرسم الهندسي 2 (اجباري)	-	3
	METP127	Workshopes- 2 (Mandatory)	المعامل 2 (اجباري)	-	6
	METP128	Electricity Technology (Optional)	تكنلوجيا الكهرباء (اختياري)	1	2
	METP129	Material Resistance (1)	مقاومة مواد 1 (اختياري)	1	2
	METP131	summer training	التدريب الصيفي (االجباري)	-	-
	Total theoretical and practical hours			58	
	TOTAL UNITS			58	

7.2Program Description					
Academic year/ Level	Course Code	Course Name in Arabic	Course Name in English	Credit Hours	
				Theoretical	Practical
Level 2 for the academic year 2024-2025	NTU200	لغة انكليزية 2 (اجباري)	English language 2	2	-
	NTU201	حاسوب 2	computer2	1	1
	NTU202	لغة عربية	Arabic Language	2	-
	NTU203	جرائم نظام البعث في العراق	The Baath regime crimes in Iraq.	2	-
	NTU204	اخلاقيات المهنة (اجباري)	Professional Ethics	2	-
	TIKI206	مشروع (اجباري)	Project	-	4
	TIKI207	مبادئ السلامة المهنية (اختياري)	Principles of occupational Safety	2	-
	TIKI208	الادارة الصناعية (اختياري)	Industrial Management	2	-
	METP210	اجزاء المكائن 1 (اجباري)	Machines Parts 1	2	-
	METP211	اجزاء المكائن 2 (اجباري)	Machines Parts 2	2	-
	METP212	عمليات تصنيع 3 (اجباري)	Manufacturing processes 3	2	2
	METP213	عمليات تصنيع 4 (اجباري)	Manufacturing processes 4	2	2
	METP214	المعامل 3 (اجباري)	Workshops 3	-	6
	METP215	المعامل 4 (اجباري)	Workshops 4	-	6
	METP216	المعادن 1 (اجباري)	Metallurgy 1	2	2
	METP217	المعادن 2 (اجباري)	Metallurgy 2	2	2
	METP218	الرسم الصناعي 1 (اجباري)	Industrial drawing 1	-	3
	METP219	الرسم الصناعي 2 (اجباري)	Industrial drawing 2	-	3
	METP223	مقاومة مواد 2 (اختياري)	Strength of material 2	2	-
	METP224	اللحام وتشكيل المعادن (اختياري)	Welding and metal forming	2	2
	METP225	السيطرة النوعية (اختياري)	Quality Control	2	-
	Total theoretical and practical hours			64	
	TOTAL UNITS			64	

8.Program Learning Outcomes
Knowledge 1-Clarifying the theoretical information of the mechanical forces.Resulting in operational processes. 2- Identifying the methods of manufacturing and calculating spare parts. 3- Studying the changes in the mechanical forces on the welded and manufactured parts, the methods of manufacturing them, and the appropriate engineering materials. 4- Identifying the mechanical machines in the workshops and laboratories of the department
Skills The subject aims to graduate qualified staff to work in the operation, maintenance and construction of: 1- Studying mechanical devices and learning how to operate and maintain them. 2- Studying the devices for measuring the mechanical properties of metals and alloys. 3- Familiarity with industrial drawings, maps and plans and the use of AutoCAD software to implement them. 4-Using computer technology and the Internet within the field of competence.
General 1-Establishing the spirit of cooperation and citizenship in students by encouraging students to integrate with society 2- Encouraging and following up students in building bridges of respect and using appropriate methods to deal with the teacher and the educator as well as with the parents 3- Expanding the space of thinking, analysis and criticism of the student through discussing scientific topics and giving voice to them 4- Raising students' awareness by implementing applied programs and following up the extent of student interaction with them 5- Asking students for their opinions on the programs and offers offered and enhancing their self-confidence

9.TEACHING AND LEARNING STRATEGIES
Theoretical lecture (with various means of explanation) , 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.

10.Evaluation methods
The work of the year includes : (written daily exam at the beginning of the lecture and includes the subject of the previous lecture, oral exams during the lecture, scientific reports, student seminars, student research) , 2) the first semester exam, 3) the final course exam 3) the second semester exam, 4) the final course exam

11-Teaching Staff						
Faculty Members						
Academic rank	Major		Special Requirements/Skills (if applicable)		TEACHING PERSONNEL	
	General	Private			employd	Not-employd
Professor	Pedagogy	Atomic & Nuclear			1	
Lecturer	Mechanical Engineering	Refractories			1	
Lecturer	Mechanical Engineering	Metallurgy			1	
Lecturer	Pedagogy	Computational Mathematics			1	
Lecturer	Software engineering	Computers			1	
Lecturer Asistance	Mechanical Engineering	Mechanical Engineering			3	
Lecturer Asistance	Petroleum Engineering	Engineering Manigment			1	

12.Professional Development:

- • Developing new faculty members
- Preparing a general academic program: Directing new faculty members to participate in specialized courses to develop their pedagogical and educational skills, especially the modern methods used in education
- Preparing scientific research : Involving the new researcher in research groups or teams to train him and develop his scientific capabilities in terms of research
- Functional performance: Involving them in vital committees in the institute, but with a participation rate not exceeding 20%, such as examination committees, audit committees, student reception committees, procurement committees, and others

- Faculty Development

- Specialized courses, participation in scientific seminars, preparation of seminars, presentation of scientific developments, preparation of scientific research, attendance of scientific conferences.
- Urging the Iraqi researcher to keep pace with scientific development and use what serves the educational process of technological development and artificial intelligence

13.Acceptance Criteria

1-The subject must have obtained a certificate after passing the general exams for the sixth grade, either in the scientific or industrial branch.
2-The graduate must be from the scientific or industrial branch (mechanical specialty).
3-The medical examination results must confirm that the student is medically fit and suitable for the department's studies.
4-Preference for student

14. The most important sources of information about the program

- Scientific books and international references in the specialization
- Research and articles published in the official journals and international universities
- Websites of Iraqi and foreign universities
- Workshops held by the Ministry of Higher Education in addition to the Ministry's standards
- Twinning with Oklahoma University
- Abet American Academic Accreditation Program
- IEEE Computer Engineering Body of Knowledge

15. Program development plan

- The use of new concepts in the field of mechanical technologies in the competencies of production ,
- Using modern equipment and keeping pace with technological development.
- Attempting to develop the practical training program in line with modernity and using advanced devices available in the labor market
- Reducing the gap between the practical reality in the labor market with the academic educational reality to facilitate the process of integrating the graduate into the labor market

- Providing vocabulary and academic education program with the views of specialized third parties and developing them

Year/Level	Course Name in English	Course Code	General and transferable skills				Emotional and value goals				Program Skill Objectives				Cognitive objectives			
			1A	2A	3A	4A	1B	2B	3B	4B	1C	2C	3C	4C	1D	2D	3D	4D
Level 1 2024-2025	Human rights and democracy	NTU100			√	√	√	√	√	√			√	√	√	√	√	√
	English 1	NTU101			√	√	√	√	√	√			√	√	√	√	√	√
	Computer / 1	NTU102	√	√	√	√	√	√	√	√			√	√	√	√	√	√
	Arabic Language	NTU103			√	√	√	√	√	√			√	√	√	√	√	√
	Sports (optional)	NTU104	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Math (1)	TIKI110	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Math (2)	TIKI111	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Geometric Drawing 1	TIKI112	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Workshop 1	TIKI112	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Mechanical 1	TIKI113	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Mechanical 2	METP120	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Manufacturing Operations 1	METP121	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Manufacturing Operations 2	METP122	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Items Properties	METP123	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Properties of Articles 2	METP124	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Engineering Drawing 2	METP125	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Workshopes 2	METP126	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Electricity Technology	METP126	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Material Resistance (1)	METP127	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	summer training	METP128	√	√	√	√			√	√	√	√	√	√	√	√	√	√

Year/ Level	Course Name in English	Course Code	General and transferable skills				Emotional and value goals				Program Skill Objectives				Cognitive objectives			
			1A	2A	3A	4A	1B	2B	3B	4B	1C	2C	3C	4C	1D	2D	3D	4D
Level 2 2024-2025	English language 2	NTU200			√	√	√	√	√	√			√	√	√	√	√	√
	computer2	NTU201			√	√	√	√	√	√			√	√	√	√	√	√
	Language Arabic	NTU202	√	√	√	√	√	√	√	√			√	√	√	√	√	√
	The Baath regime crimes in Iraq.	NTU203			√	√	√	√	√	√			√	√	√	√	√	√
	Ethics Professional	NTU204	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Project	TIKI206	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	of Principles occupational Safety	TIKI207	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Industrial Management	TIKI208	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Machines Parts 1	METP210	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Machines Parts 2	METP211	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Manufacturing processes 3	METP212	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Manufacturing processes 4	METP213	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Workshops 3	METP214	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Workshops 4	METP215	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Metallurgy 1	METP216	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Metallurgy 2	METP217	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Industrial drawing 1	METP218	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Industrial drawing 2	METP219	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Strength of material 2	METP223	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Welding and metal forming	METP224	√	√	√	√			√	√	√	√	√	√	√	√	√	√
	Quality Control	METP225	√	√	√	√			√	√	√	√	√	√	√	√	√	√

Human Rights and Democracy Course (First Level)

This course provides a broad understanding of human rights as recognized by divine religions and international norms that allow man to exercise his personal rights without encroaching on others

1- Educational Institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies
3-Course Name	Human Rights and Democracy NTU100
4-Available attendance forms	Attendance in the halls of the department
5-Semester/year	2025
6-Number of study hours	30hours (2 hours per week)
7-Date this description was prepared	**1 December 2024**

8-Objectives of the Article : **Introduce the student to:**
1- Introducingthe principles of human rights
2- Learn about the historical development of human rights
3-Introducing human rights in divine religions
4- Identifying human rights in global constitutions
5-Identifying the Universal Declarations of Human Rights

9- Course outcomes, teaching, learning and evaluation methods
Cognitive objectives 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-The trade-off between the factors of the historical development of human rights. - 5- Knowing the importance of studying rights - 6- Identifying the historical sequence of rights
Teaching and learning methods
Theoretical lecture (with various means of explanation) google class room, practical lecture (with various means of explanation) , scientific reports. google meet.Youtube section.
Evaluation methods
1) The work of the year includes : (the daily exam at the beginning of the meeting, including the subject of the previous lecture, the oral exams during the lecture with the same subject of the lecture, scientific reports, 2) the first semester exam, 3) the second semester exam, 4) the final exam with its roles.
Emotional and value goals
1- The student should listen carefully to the teacher's explanation – 2- The student should pay attention to the calmness and order of the class - 3-The student should learn about the impact of science and scientists on life - 4-The student should describe the importance of human rights
Teaching and learning methods
Theoretical lecture (with various means of explanation) google class room , , scientific reports. google meet.Youtube Section
Evaluation methods
1) The work of the year includes : (the written daily exam at the beginning of the lecture and includes the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture, scientific reports, 2) the first semester exam, 3) the second semester exam, 4) the final exam.

10.Material Structure					
Week	Hours	Intended Learning Outcomes	Module / Course Name or	teaching method	Evaluation method
On a weekly basis	2	Human rights and democracy	Department of Mechanical Technologies	theoretical	Tests.

11.Course Structure				
Week	houres	Module / Course Name or Human Rights and Democracy	teaching method	Evaluation method
1	2	Historical development of human rights. Human rights in ancient civilizations, the Mesopotamian civilization, and other ancient civilizations	Theoret ical	Tests.
2	2	Human rights in the divine laws with a focus on human rights in Islam	Theoret ical	- Tests.
3	2	Human rights in the Middle Ages and Modern.	Theoret ical	- Tests.
4	2	Regional recognition of human rights at the European, American, African, Islamic and Arab levels	Theoret ical	- Tests.
5	2	NGOs and their role in human rights International Committee of the Red Cross, Amnesty International, Human Rights Watch Arab Organization for Human Rights	Theoret ical	- Tests.
6	2	Human rights in international and regional instruments and national legislation. Human Rights in International Covenants Universal Declaration of Human Rights International Covenants on Human Rights	Theoret ical	- Tests.
7	2	Human Rights in Regional Covenants European Convention on Human Rights American Convention on Human Rights African Charter on Human Rights, Arab Charter on Human Rights	Theoret ical	- Tests.
8	2	Human Rights in National Legislation Iraqi Constitution	Theoret ical	- Tests.
9	2	Forms of human rights Individual rights Collective rights Generations of human rights First generation: civil and political rights), (Second generation economic and social rights), (Third generation: modern human rights) , German and intergenerational awareness	Theoret ical	- Tests.
10	2	Human rights guarantees and protection at the national level:A. Constitutional and jurisprudential guarantees	Theoret ical	- Tests.
11	2	Human rights guarantees and protection at the regional and international levels, the role of the United Nations, the role of regional organizations, the crime of genocide	Theoret ical	- Tests.
12	2	Classification of public freedoms: fundamental and individual freedoms: freedom of security and sense of reassurance, freedom of going back and forth, personal freedom	Theoret ical	- Tests.
13	2	Intellectual and cultural freedoms: freedom of opinion, freedom of belief, freedom of education	Theoret ical	- Tests.
14	2	Freedom of the press, freedom of assembly, freedom of association	Theoret ical	- Tests.
15	2	Economic and social freedoms (freedom of work, freedom of ownership, freedom of trade and industry)	Theoret ical	- Tests.

11. Infrastructure	
Required textbooks	A holistic view of human rights
Key References (Sources)	United Nations
Recommended books and references (scientific journals, reports,...)	Human rights under Iraqi, Arab and international law Virtual Library of the Ministry of Higher Education and Scientific Research

ESL Course Description-1 (Level 1)

This course deals with the definition of the basics of the English language and the definition of times in the English language (past , present , future) in all its forms (simple , continuous, complete , continuous) as well as the definition of the tools of the question Wh as well as the definition of how to add in the English language.

1- Educational Institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies
3- Course Name	English NTU101
4- Available attendance forms	Attendance in the halls of the department
5- Semester/year	2023-2024
6- Number of study hours (total)	30hours (2 hours per week)
7- Date this description was prepared	**1 December 2024**

8- Objectives of the course: **Introducing the student to:**
1- Introducingthe basics of the English language
2- Identifying the past tense in the English language
3- Introducing the present tense in English
4- Identifying the future time in the English language
5-Identifying the tools of the question Wh

9.- Course outcomes, teaching, learning and assessment methods
Cognitive objectives 1-Introducing the basics of the English language 2- Identifying the past tense in the English language 3- Introducing the present tense in English 4- Identifying the future time in the English language 5- Identifying the tools of the question Wh
Teaching and learning methods
Theoretical lecture (with various means of explanation) google class room, practical lecture (with various means of explanation) , scientific reports. google meet.Youtube section.
Evaluation methods
1) The work of the year includes : (the daily exam at the beginning of the meeting, including the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture, scientific reports, 2) the first semester exam, 3) the second semester exam, 4) the final exam.

10. Material Structure					
Week	Hours	Intended Learning Outcomes	Module / Course Name	teaching method	Evaluation methods
On a weekly basis	2	English	Department of Mechanical Technologies	theoretical	- Tests.

Week	hours	Module / Course Name or English Language	teaching method	Evaluation methods
1	2	Definition of the basics of the English language	Theoretical	- Tests.
2	2	Introducing the wording of sentences in English	Theoretical	- Tests.
3	2	Present Simple and Continuous Time	Theoretical	- Tests.
4	2	Present perfect and continuous perfect time	Theoretical	- Tests.
5	2	Simple and continuous past time	Theoretical	- Tests.
6	2	Complete and continuous past time	Theoretical	- Tests.
7	2	Simple and continuous future time	Theoretical	- Tests.
8	2	Full and continuous future time	Theoretical	- Tests.

9	2	What question tool	Theoretical	- Tests.
10	2	Why Question Tool	Theoretical	- Tests.
11	2	Where Question Tool	Theoretical	- Tests.
12	2	Ask tool when	Theoretical	- Tests.
13	2	How to add in English	Theoretical	- Tests.
14	2	Job, grade, salary and workplace	Theoretical	- Tests.
15	2	Full review	Theoretical	- Tests.

11. Infrastructure	
Required textbooks	Headway Beginner Student's Book Liz and John Soars
Key References (Sources)	Headway Beginner Student's Book Liz and John Soars
Recommended books and references (scientific journals, reports,...)	Virtual Library ofthe Ministry of Higher Education and Scientific Research

12-The development plan of the academic subject : The development plan is carried out through studies submitted through the annual scientific plan for the development of the academic subject .

Computer Course Description-1 (Level 1)

The course description focuses on teaching students how to use basic computer applications in their academic and professional lives, such as Microsoft word processing, Excel arithmetic tables, Power Point presentations, browsing and searching on the Internet, and programming basics.

1-Educational Institution	Northern Technical University/Kirkuk Technical Institute
2-Scientific Department/ Center	Department of Mechanical Technologies
3- Course Name/ Code	Computer-1 NTU102
4-Available attendance forms	Daily attendance in the department's halls and laboratories.
5-Semester/year	4202-5202
6-Number of study hours (total)	30hours (2hours per week)
7-Date this description was prepared	**1 December 2024**

8-Objectives of the Article: **Introduce the student to:**
1- Introducing the student to the basic processes of introducing computers: their generations, components
2- Introducing the student to the calculator operating system
3- Teaching the student how to use the calculator and apply programs
4- Introducing the student totheprogram
5- Teaching the student to implement the program in calculation
6. Identifying the parts of the calculator and its accessories

9.- Course outcomes, teaching, learning and assessment methods
Learning objectives and competencies: 1- The student should get acquainted with the parts of the calculator and its accessories - 2- The student understands how to operate the calculator - 3- 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 get acquainted with the operating systems of the calculator
Teaching and learning methods
Theoretical lecture (with various means of explanation) google class room, practical lecture (with various means of explanation) , scientific reports. google meet.Youtube section.
Evaluation methods
1) The work of the year includes : (daily exam at the beginning of the meeting, including the topic of the previous lecture, oral exams during the lecture with the same topic of the lecture , scientific reports) 2) The first semester exam, 3) The second semester exam, 4) The final exam with its courses.
Affective and value-based objectives
1-The ability to deal with a calculator 2- Using Microsoft Office in a calculator 3- Knowing the specifications and features of the types of computers . 4-Identifying the methods of computer programming
Teaching and learning methods
Theoretical lecture (with various means of explanation) google class room , practical lecture (with various means of explanation) , scientific reports. google meet.Youtube Section
Evaluation methods
1) The work of the year includes : (the written daily exam at the beginning of the lecture and includes the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture, scientific reports, 2) the first semester exam, 3) the second semester exam, 4) the final exam.

10. Course structure					
Week	Hours	Required learning outcomes	Module / Course Name	teaching method	Evaluation Methode
On a weekly basis	2 (1 prac.+1theo.)	(Computer Applications)	Department of Mechanical Technologies	Theory / Practicals	- Tests.

Week	hours	Module / Course Name or Computer -1	teaching method	Evaluation Methode
1	2	Introducing computers: their generations, their components: physical hardware and software software (software and application programs)	Theory / Practicals	- Tests.
2	2	Windows XP: Windows concept, features, prerequisites, operating system	Theory / Practicals	- Tests.
3	2	Screen Components for Desktop, Icons Concept , Mouse Event Handling	Theory / Practicals	- Tests.
4	2	The importance and components of the "Task bar" , taking advantage of "Start" to enter programs, the concept of loaded tasks, exiting the system and turning off the calculator	Theory / Practicals	- Tests.
5	2	The concept of the window for any program and identifying its main components, dealing with “My Computer, My Documents, Recycle bin”	Theory / Practicals	- Tests.
6	2	The concept of the window for any program and identifying its main components, dealing with “My Computer, My Documents, Recycle bin”	Theory / Practicals	- Tests.
7	2	Learn about My Computer in terms of disks, folders and file and how to deal with formatting floppy disks	Theory / Practicals	- Tests.
8	2	Copying folders and files, dealing with the trash can and how to delete and retrieve files through what the trash can provides from this aspect	Theory / Practicals	- Tests.
9	2	Take advantage of Control panel programs: such as the “Mouse” icon, the “Display”icon, how to change the background of the library surface, control the screen saver, and change the appearance and colors of window menus, the “ Remove& Add prog.” icon. Adding and deleting programs	Theory / Practicals	- Tests.
10	2	Take advantage of the option "Run" in the implementation of programs directly as well as switching to the system signal (Ms-Dos) and dealing with its orders	Theory / Practicals	- Tests.
11	2	Using the entertainment programs “Window Media Player” in playing movies.	Theory / Practicals	- Tests.
12	2	Take advantage of additional programs "Accessories" such as the sensory machine "Calculator"	Theory / Practicals	- Tests.
13	2	Dealing with painting programs "Paint" in creating, saving and retrieving fees through the orders provided by	Theory / Practicals	- Tests.
14	2	Dealing with the “Note pad” and the “ Word pad” in writing, saving, retrieving, printing and changing the printing style and formatting of texts	Theory / Practicals	- Tests.
15	2	Learn how to get help and its different methods	Theory / Practicals	- Tests.

11. Infrastructure	
Required textbooks	Computer Fundamentals
Key References (Sources)	1- Mohamed Bilal et al., "Computer and Ready Software Computer Skills" , Wael House for Printing and Publishing ,Amman,Jordan,2008. 2- Nabil Kourani,"Microsoft Windows XP Course in a Book", Shuaa Publishing and Science, Syria, 2002.
Recommended Books and References	Virtual Library of the Ministry of Higher Education and Scientific Research

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

Arabic Course Description (Level 1)

The Arabic language is studied and mastered because it is the language of the Qur 'an and Islam. Our curriculum includes a number of basics that are included in a specific ministerial curriculum, including: (sections of speech - punctuation - hamza and its joints, number, ...) Divided into a full semester, it serves the scientific and humanitarian departments and develops the student's linguistic and cultural credentials.

1-Educational Institution	Northern Technical University/Kirkuk Technical Institute
2-Scientific Department / Center	Department of Memanic Techniques
3-Course Name/Code	Arabic
4- Available Attendance Formats	Daily
5- Semester/Year	2024-2025
6-Number of study hours	30 hours per year (2 hours per week 2 hours)
7- Description Preparation Date	**1 December 2024**

8- Objectives of the course :
Introducing the student to:

1- Introduce the student to the correct use of language and stay away from error.
2- Teaching him to distinguish between the name, the verb and the letter, and the method of using punctuation marks as appropriate for them.
3- Mastering the correct and proper formulation during writings and correspondence from the basics of language study.

9. Course Outcomes and Teaching, Learning
Cognitive Objectives 1- Identifying the differences among learners, while identifying the behaviors of each learner to lead them to success. 2. Acquiring the correct language drafting skill. 3. Distinguishing between error and right in writing numbers.
Teaching and learning methods
Theoretical lecture (with various means of explanation) google class room, , scientific reports. google meet.Youtube section.
Evaluation methods
1) The work of the year includes : (The daily exam at the beginning of the meeting, including the subject of the previous lecture, the oral exams during the lecture with the same subject of the lecture, scientific reports, 2) The first semester exam, 3) The second semester exam, 4) The final exam with its courses.
Behavioral objectives or learning outcomes
1- The student is aware of the importance of the Arabic language as the main nerve of our society. 2- Distinguishing between error and right in the tasks assigned to him, such as tests, correspondence and correspondence. 3- Build his linguistic queen and strengthen her with evidence that supports his opinion and is consistent with the information he received.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Module / Course Name or	teaching method	Evaluation Method
On a weekly basis	2	**Arabic**	Department of Mechanical Technologies	theoretical	- Tests.

Week	hours	Module / Course Name or Arabic Language	teaching method	Evaluation Method
1	2	Introduction to Linguistic Errors	Explanation of the lecture in the presence of explanatory means	- Tests.
2	2	Elongated and Compartmented Thousand Writing Rules	Explanation of the lecture in the presence of explanatory means	- Tests.
3	2	Alzad and Alzaa	Explanation of the lecture in the presence of explanatory means	- Tests.
4	2	Hamza Writing	Explanation of the lecture in the presence of explanatory means	- Tests.
5	2	punctuation marks	Explanation of the lecture in the presence of explanatory means	- Tests.
6	2	Name and verb and distinguish between them	Explanation of the lecture in the presence of explanatory means	- Tests.
7	2	Reactors	Explanation of the lecture in the presence of explanatory means	- Tests.
8	2	Number	Explanation of the lecture in the presence of explanatory means	- Tests.
9	2	Common Errors Apps	Explanation of the lecture in the presence of explanatory means	- Tests.
10	2	Nun and Tanween	Explanation of the lecture in the presence of explanatory means	- Tests.
11	2	Formal Aspects of Administrative Letter	Explanation of the lecture in the presence of explanatory means	- Tests.
12	2	Prepositional Meanings	Explanation of the lecture in the presence of explanatory means	- Tests.
13	2	Solar and lunar letters	Explanation of the lecture in the presence of explanatory means	- Tests.
14	2	Closed Taa (al Taa al-Marbouta)	Explanation of the lecture in the presence of explanatory means	- Tests.
15	2	Open Taa (al-Taa Al-Maftoha)	Explanation of the lecture in the presence of explanatory means	- Tests.

11. Infrastructure	
Required textbooks	Reference Books and Resources
Key References (Sources)	Key references Scientific sources within the World Wide Web.
Recommended Books and References	Virtual Library of the Ministry of Higher Education and Scientific Research

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

Sports Course Description (Level 1)

The student will be able to identify and understand the mechanism of movement of the human body and what are the risks surrounding it from injuries that occur during sports practice as well as understanding the laws and practices of some famous individual and team sports

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Mechanical Techniques/ Production
3. Course Name / Code	University Sports/ NTU104
4-Available forms of attendance	In-person
5-semester/ year	-2024
6. Number of study hours (total)	30 hours (2 hours per week)
7.Date of preparation of this description	**1 December 2024**

8- Objectives of the Article: **Introduce the student to:**
1- Apply basic skills for some individual and team games 2- Identify the motor mechanism of the human body and what are the common injuries that occur in the human body 3- Interest in sports activity for students' participation in sports and artistic activities 4- Learn about the most important legislation and sports laws and how to manage sports tournaments and competitions

9. Course Outcomes and Teaching, Learning and Evaluation Methods
1- The student learns about the most important laws and skills of some sports.
Teaching and Learning Methods
Theoretical and Practical Lecture
Valuation Methods
1) The works of the year, including : (A daily application for games . Theoretical and practical lectures. 2) The first semester exam, 3) The second semester exam, 4) The final exam with its courses.

Affective and Valuable Objectives
1- Developing the student's skill in sports 2- Try to apply the concepts by doing different types of exercises . 3- Developing the student's ability to join the institute and university team to participate in sports tournaments
Teaching and Learning Methods
Theoretical lecture (with various means of explanation) with practical application in the gymnasium
Valuation Methods
1) The work of the year includes : 1- Daily attendance with sportswear at the lecture 2-At the beginning of the lecture, mention the subject of the previous lecture, 3- Practical examinations with the same subject as the lecture , 4) the first semester exam, 5) the second semester exam, 6) the final exam.

10. Material Structure					
Week	Hours	Intended Learning Outcomes	Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	2 hours per week	University Sports	Student Activities Division	Theoretical - Practical	STKs Examinations

Week	Hours	Unit or Topic Name	Learning Method	Method of Evaluation
1-6.	2	Sport Definition, importance and types Mechanism of movement of the human body Common sports injuries Basic skills of the game of basketball International law of basketball Presentation of a film on the types of sports and what are the benefits that can be used by society Conducting tests for muscles working on the joints of the body and motor ranges have the application of basic stages Ambulance for injured players and according to the type of injury and its location Learn some basic skills in basketball	Theoretical + Practical	Oral, practical and theoretical exams
7-9	**2**	For the basic skills of table tennis and its international law Basic skills of volleyball and its international law Swimming sport Basic skills of tennis	Theoretical + Practical	Oral, practical and

		and its international law Apply skills individually and collectively Apply some basic skills in table tennis Learn some basic skills in volleyball Video presentation about swimming and a scientific trip to the swimming pool of the University of Baghdad Apply some basic skills of ground tennis Learn some basic skills in handball		theoretical exams
10-12	2	For the basic skills of the game of handball, the international law of handball, the games of the arena and the field, their types , the international law of the game (applying skills individually and collectively, applying basic skills, inspiring the events of the arena and the field, applying the most important rules of the game of football	Theoretical + Practical	Oral, practical and theoretical exams
13-15	**2**	Basic football skills Management of competitions and sports competitions Sports laws and legislation Practical applications on how to manage tournaments and sports competitions	Theoretical + Practical	Oral, practical and theoretical exams

11. Infrastructure	
Required textbooks	Curriculum for Physical Education
12-The development plan of the academic subject : The development plan is carried out through studies submitted through the annual scientific plan for the development of the academic subject .	

Description of Math Course 1 (Level 1)

The mathematics course aims to develop students' mental, logical and creative skills and provide them with the necessary tools to solve practical and theoretical problems in various fields. Mathematics is a universal language that can be used to describe and understand natural, social, and artistic phenomena. Mathematics is also a source of beauty, inspiration and pleasure for many people.

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2-Scientific Department/ Center	Department of Mechanical Technologies
3-Course Name /Code	Math-1 TIK110
4-Available Attendance Forms	Daily attendance in the Hall ofAttendance.
5-Term / Year	-2024
6-Number of study hours (total)	60 hours per year (2 hours per week)
7-Date this description was prepared	1 December 2024

8-Objectives: Introducing the student and equipping him with a skill in solving:
Types of logarithmic functions
Types of matrices and methods of solving them
Types of vectors and their solutions
Types of derivatives and their formulas
Integration and Differentiation
The Seven Integration Methods

9. Course Outcomes and Teaching, Learning and Evaluation Methods
A- Knowledge Objectives 2- Knowledge of mathematical terms, skills, methods and symbols. 3- Knowing the facts and retrieving the laws and relations between the parts of some units. 4- Developing the ability of a student to absorb the scientific material by solving complex problems. B- Affective and Value Objectives 1-Reception: It is the awareness of an idea or phenomenon. 2-Response: Active participation and interaction in the lecture. 3-Organization: The student learns the importance of organization and arrangement in solving problems.

Teaching and Learning Methods
The theoretical lecture using various means of explanation: such as data show , writing examples on the whiteboard , scientific reports.
Valuation Methods
1- Coursework includes : (daily exam at the beginning of the lecture and includes the topic of the previous lecture, oral exams during the lecture with the same topic of the lecture , scientific reports. 2- Monthly exams. 3- The first and second semester exams.

10. Material Structure					
Week	Hours	Intended Learning Outcomes	Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	2	Mathematics	Mechanical Technology/Production Department	Theoretical	STKs Examinations

Week	**Hours**	**Module Name/ or Topic** Mathematics -1	**Teaching Method**	**Method of Evaluation**
1	2	Determinants and characteristics	Theoretical	Examinations
2	2	Solving simultaneous equations by the method of determinants (Cr Amer)	Theoretical	Examinations
3	2	Differentiation	Theoretical	Examinations
4	2	Derivative Algebra	Theoretical	Examinations
5	2	Multifunctionality	Theoretical	Examinations
6	2	Trigonometric functions	Theoretical	Examinations
7	2	Logarithmic and exponential functions	Theoretical	Examinations
8	2	Derivatives, Implicit Functions, and the Sequence Rule	Theoretical	Examinations
9	2	Drawing Functions	Theoretical	Examinations
10	2	Drawing Trigonometric Functions	Theoretical	Examinations
11	2	Lower and Lower Limits	Theoretical	Examinations
12	2	Differential Applications	Theoretical	Examinations
13	2	Physical Calculus Applications Velocity and Acceleration and Engineering Applications	Theoretical	Examinations
14	2	Integration	Theoretical	Examinations
15	2	Relationship of Integration to Specific and Unspecified Calculus	Theoretical	Examinations

11: Infrastructure	
Required textbooks	Mathematics -Saad Al-Jumaily
Key References (Sources)	Thomas' Calculus,7th Edition
Recommended books and references (scientific journals, reports,....)	Virtual Library of the Ministry of Higher Education and Scientific Research www.zweigmedia.com/ www.gigapediA.org
Course development plan: The vocabulary of the subject is reviewed annually and an attempt is made to develop what corresponds to 10% according to modern sources	

Math Course Description-2 (Level 1)

The mathematics course aims to develop students' mental, logical and creative skills and provide them with the necessary tools to solve practical and theoretical problems in various fields. Mathematics is a universal language that can be used to describe and understand natural, social, and artistic phenomena. Mathematics is also a source of beauty, inspiration and pleasure for many people.

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
1- Scientific Department/ Center	Department of Mechanical Technologies
2- Course Name /Code	Math 2 TIK111
3- Available Attendance Forms	Daily attendance in the Hall ofAttendance.
4- Term / Year	-2024
5- Number of study hours	60 hours per year (2 hours per week)
6- Date this description was prepared	1 December 2024
7- Objectives of the Article: Introducing the student and acquiring a skill in solving:	

Types of logarithmic functions
Types of matrices and methods of solving them
Types of vectors and their solutions

Types of derivatives and their formulas
Integration and Differentiation
The Seven Integration Methods

9. Course Outcomes and Teaching, Learning and Evaluation Methods
A- Knowledge Objectives 2- Knowledge of mathematical terms, skills, methods and symbols. 3- Knowing the facts and retrieving the laws and relations between the parts of some units. 4- Developing the ability of a student to absorb the scientific material by solving complex problems. B- Affective and Value Objectives 1-Reception: It is the awareness of an idea or phenomenon. 2-Response: Active participation and interaction in the lecture. 3-Organization: The student learns the importance of organization and arrangement in solving problems.

Teaching and Learning Methods
The theoretical lecture using various means of explanation: such as data show , writing examples on the whiteboard , scientific reports.
Valuation Methods
1- Coursework includes : (daily exam at the beginning of the lecture and includes the topic of the previous lecture, oral exams during the lecture with the same topic of the lecture , scientific reports. 2- Monthly exams. 3- The first and second semester exams.

10. Material Structure					
Week	Hours	Intended Learning Outcomes	Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	2	(Math-2)	Mechanical Technology/Production Department	Theoretical	STKs Examinations

Week	Hours	Module Name/ or Topic Math-2	Teaching Method	Method of Evaluation
1	2	Implicit Integration	Theoretical	Examinations
2	2	Integration Applications	Theoretical	Examinations
3	2	Engineering Integration Applications “ Spaces and Volumes”	Theoretical	Examinations
4	2	Physical Integration Applications	Theoretical	Examinations
5	2	General Methods of Integration	Theoretical	Examinations
6	2	Compensation Method and Partial Method	Theoretical	Examinations

7	2	Using partial, exponential and logarithmic fractions	Theoretical	Examinations
8	2	Differential equations	Theoretical	Examinations
9	2	Discrete, homogeneous and linear equations	Theoretical	Examinations
10	2	Apps	Theoretical	Examinations
11	2	Apps	Theoretical	Examinations
12	2	Vectors	Theoretical	Examinations
13	2	Directional and quantitative multiplication and calculation of angles between vectors	Theoretical	Examinations
14	2	Statistics	Theoretical	Examinations
15	2	Probability Theory	Theoretical	Examinations

11: Infrastructure	
Required textbooks	Mathematics -Saad Al-Jumaily
Key References (Sources)	Thomas' Calculus,7th Edition
Recommended books and references	Virtual Library of the Ministry of Higher Education and Scientific Research www.zweigmedia.com/ www.gigapediA.org
Course development plan: The vocabulary of the subject is reviewed annually and an attempt is made to develop what corresponds to 10% according to modern sources	

Description of Engineering Drawing Course-1 (Level 1)

Qualifying the student so that he is able to deal with the language of drawing,understanding engineering plans or implementing them.

1- Educational Institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies
3. Course Name / Code	ECP-1 TIK112
4-Available forms of attendance	Attendance in the halls and studio of the department
5-semester/ year	2024-2025
6. Number of study hours (total)	45 hours per class (3 hours per week)
7.Date of preparation of this description	1 December 2024

8.Objectives of the Article :

Introduce the student to:

1-Introducing the student to the importance of engineering drawing and its relationship to other engineering materials

2- Developing the student's mental and motor abilities in drawing simple and complex shapes

3- Expanding the horizons of his imagination of geometric shapes and complexes to identify their components, procedures, 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

9. Course Outcomes and Teaching, Learning and Evaluation Methods
Knowledge Objectives 1-The student should recognize the importance of engineering drawing - 2. The student learns how to imagine geometric shapes - 3-The student should distinguish the mechanical components and parts and the principle of their work
Teaching and Learning Methods
Theoretical lecture (with various means of explanation) google class room, practical lecture (with various means of explanation) , scientific reports. google meet.Youtube section.
Valuation Methods
1) The work of the year includes : (The daily exam at the beginning of the meeting, including the subject of the previous lecture, the oral exams during the lecture with the same subject of the lecture, scientific reports, 2) The first semester exam, 3) The second semester exam, 4) The final exam with its courses.

10 : Course Structure				
Week	Hours	Module / Course Name or Topic Engneering Drawing-1	Teaching Method	Method of Evaluation
Weekly	3	Department of Mechanical Technologies	Practical,	Examinations
1	3	The Importance of Engineering Drawing - The Importance of Using a Computer to Carry out Engineering Drawing (Standard) Drawing Board Sizes About AutoCAD	Experimental	Examinations
2	3	Types of fonts in the geometric drawing - the use of clipboard for fonts and texts	Experimental	Examinations
3-4	3	The basic forms in AutoCAD	Experimental	Examinations
5-6	3	Drawing Adjustments - Drawing Aids	Experimental	Examinations
7-9-8	3	Engineering Operations - Dimensioning Applications to Previous Concepts	Experimental	Examinations
11	3	Perspective drawing Perspective drawing containing a circle , a rectangle , a triangle and a polygon	Experimental	Examinations
13	3	Perspective drawing Perspective drawing containing a circle , a rectangle , a triangle and a polygon	Experimental	Examinations
14-15	3	Projection theory - drawing simple projections	Experimental	Examinations

11. Infrastructure	
Required textbooks	Engineering Drawing – Abdul Rasool Al Khafaf
Key References (Sources)	E-books
Recommended books and references	1- Virtual Library of the Ministry of Higher Education and Scientific Research Manual of engineering drawing - Simmons C.H., Maguire D. E. - Reference in Engineering Drawing ,Dr. Mahmoud Saleh Zamout

Description of Laboratory Course 1 (Mechanical Workshops) (Level 1)

After the end of teaching this subject, the learner will be able to: Identifying the various methods and installing the parts of the stalls in the workshops and working on them, casting metals and their importance, identifying the turning machine, its types and parts, and acquiring the skill to deal with machines and devices .

1- Educational Institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies
3- Course Name /Code	Workshopes-1(Mechanical) TIK113
4- Available Attendance Forms	Attendance at workshops
5- Term / Year	-2024
6- Number of study hours (total)	90hours for the first semester (6 hours per week)
7- Date this description was prepared	1 December 2024

Objectives of the Article :
Introduce the student to:
Providing and qualifying the student with basic information in the subject of engineering workshops
Familiarity with the operation and knowledge of machine parts workshops (turning, welding, and carpentry)
Conducting practical exercises and how to use the tool

9. Course Outcomes and Teaching, Learning and Evaluation Methods
Knowledge Objectives 1-Identifying the various methods and installing the parts of the machines in the workshops 2-Know how to deal with the number and machines and their parts in addition to how to make measurements 3-Ability to optimally test the appropriate method of work from among the above methods.
Teaching and Learning Methods
Practical lecture (with various means of explanation) , working on the operation of the machines and applying the exercises to them.
Valuation Methods
1) Course work, including : daily practical exercises, reports .
Affective and Valuable Objectives
1- Analysis, reasoning and comparison 2- Observation accuracy and depth of thought 3- Speed of information retrieval and intuition of conclusion 4- Speed and accuracy of decision making 5- Improving Digital Values

10- Program Structure					
Week	Hours	Intended Learning Outcomes	Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	6	**Workshopes 1**	Department of Mechanical Technologies	Practical	Practical exams

Week	**Hours**	**Module Name/ or Topic** Workshopes- 1	Teaching Method	Method of Evaluation
1	2	- Model carpentry 1- Basic principles in model carpentry, definition of types of wood and its uses , types of models, carpentry and their uses in plumbing 2- Correction of the model , the conditions to be met in the correction of the model , the deflator , an exercise on the executive drawing of simple models with a single border and without a box 3- Used equipment, hand tools, used mechanical equipment, thickener, tray saw, tape saw, robbing machine , sanding machine, transformer . Practical training for Shankarah for parts according to the operational drawing on the marks	Practical	Practical exams
2	2	Completion of the training , finishing the parts of the model and methods of assembling it , its final dimensions	Practical	Practical exams
3	2	Composite Models: Explanation of Multiple Boundaries, Internal Spaces	Practical	Practical exams
4	2	- Metal plumbing Metal casting and its importance , the purpose of using castings in industry , the contents of the plumbing unit, industrial security precautions in casting , forming a sand mold for a one-piece model in front of students , the sand of molds and hearts, their types and sources, the properties of additives, mixing processes and adjusting quantities , the use of sand mixer, sand processing. Forming sand molds by manual methods of one-piece model to form a sand mold.	Practical	Practical exams
5	2	Sand mould for one-piece model with fixing of castings and elevators , metal smelting and moulding , extraction and cleaning of castings	Practical	Practical exams
6	2	Forming a sand mold like the previous one with melting the metal, casting it into a mold, taking out the cast and cleaning it.	Practical	Practical exams
7	2	Plumbing sand molds in a productive manner, training on the use of plumbing plates that contain more than one piece per mold and have hearts , methods of cleaning castings with brushes , filings, grinding stones, steel balls, compressed air, rotating machines, reviewing and	Practical	Practical exams

		examining castings, identifying apparent defects and their causes, reviewing the dimensions of castings , and ensuring that they conform to the required dimensions		
8	2	Plumbing sand molds for graded and composite models that have a heart. These exercises are part of the exercises that the student will complete in other laboratories.	Practical	Practical exams
9	2	Metal smelting furnaces, their types , qualities , uses , rotary kiln, flip-flop, stationary.	Practical	Practical exams
10	2	- Refrigeration and maintenance 1- Industrial development and the role of the refrigerator 2- The vernier foot, its types, measurement methods, how to make a vernier that reads the depth altimeter, calipers 3 Operation Shankarah The number of foundation surfaces used , the materials for showing the impact fork, the men of justice , the men of the shankar, the sin and the sin, the right angle , the flowers of the shankar, the ordinary and sensitive shankar, the altimeter , the universal protractor and measuring angles , a practical exercise that combines shankar operations . 4. Files and Cold Process The types of files and their specifications, the dens, their types, and the methods of linking the works.	Practical	Practical exams
11	2	Uses of files , method of cleaning files, cold process, exercise on shankarah and simple cooler. Hand saw cutting, saw weapon, saw weapon fixation, conditions to be met in sawing , saw cutting exercise	Practical	Practical exams
12	2	1. The process of eugenics, types of embryos, age and maintenance of embryos, types of hand hammer heads,method of fixing the hammer head, and an exercise in the process of eugenics. 2- The process of drilling and bulldozing, types of drills , types of prime , types of raymers, how to conduct the process of drilling and bulldozing, an exercise in manual and mechanical drilling and bulldozing after conducting shanking operations 3- Crowbars :types of crowbars , tables of internal and external teeth Training to conduct different crowbars operations	Practical	Practical exams
13	2	Various trainings on the aforementioned refrigeration works.	Practical	Practical exams
14	2	The importance of maintenance for machines and equipment , clarifying periodic and comprehensive maintenance operations, and how to prepare maintenance reports.	Practical	Practical exams
15	2	1- Types of gasket and sealants, their uses, methods of fixing and removing them, and reviewing their work 2. Types of valves and their methods of work, inspection, and repair	Practical	Practical exams

11.SUBSTRUCTURE	
Required textbooks	Foundation Workshops/General Organization for Technical Education and Vocational Training/ Kingdom of Saudi Arabia
Key References (Sources)	Production Operations Principles/Dr. Qahtan Khalaf Al-Khazraji
Recommended books and references	Virtual Library of the Ministry of Higher Education and Scientific Research

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

Description of Mechanic-1 Course (Level 1)

The study aims at the mechanics course to clarify the effect of forces on objects in the case of movement and static and to study the stresses and emotions resulting from loads

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies
3.Course Name / Code	MECHANIC-1 METP120))
4. Available forms of attendance	Daily attendance in the lecture hall and laboratories.
5-Term / Year	-2024
6.Number of study hours (total)	60 hours for the first semester (4 hours per week)
7.Date of preparation of this description	**1 December 2024**

8- Objectives of the Article:
Introduce the student to:
1- Provide basic definitions and introductory concepts of mechanical engineering. 2-The student is familiar with the basics of static mechanics and its application in the laboratory. 3- Developing the ability to how to link data with information to obtain the solution of problems.

9. Course Outcomes and Teaching, Learning and Evaluation Methods
A- Knowledge Objectives
1. Understand the methods of calculating the power system. 2- Analyzing the balance of body and structures. 3- Analyzing and understanding the procedures to calculate the center and center of gravity of the body and the second moment of area and mass. (b) The skill objectives of the course. 1. Understanding the kinetic investigation methods of particles and solid body 2- Understand the kinetic investigation methods of particles and solid body. 3-The ability to apply modern knowledge and apply mathematics, science, engineering and technology to the problems and applications of engineering mechanics.
Teaching and Learning Methods
Theoretical lecture (with various means of explanation) Google class room and data show,films , practical lecture (with various means of explanation) , scientific reports. Google meet.Youtube section.
Valuation Methods
1) Course work, including : (daily exam, including the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture , scientific reports, 2) the first semester exam according to the built-in system, 3) the second semester exam according to the built-in system, 4) the final exam with its roles.

Affective and Valuable Objectives
1- Understand and develop professional responsibilities during the work of groups to solve problems and perform experiments in the laboratory. 2-Developing effective communication between the student and the subject teacher during solving problems and giving assignments.

10- Material Structure					
Week	Hours	Intended Learning Outcomes	Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	4(2 theoretical + 2practical)	Mechanic -1	Department of Mechanical Technologies	Theoretical + Practical	Daily, Monthly and Quarterly Final Exams

Week	Hours	Module Name/ or Topic Mechanical Course -1	Teaching Method	Method of Evaluation
1	2	Static, fundamental concepts, Force, Scalars and Vectors units, Force polygon, Cartesian Compounents	Theoretical	Daily, monthly and quarterly exams
2	2	Analysis of Forces	Theoretical	Daily, monthly and quarterly exams
3	2	Resultant of Concrrent, Coplanar Force system	Theoretical	Daily, monthly and quarterly exams
4	2	Moments	Theoretical	Daily, monthly and quarterly exams
5	2	Couples, transformation of the Couple and the force	Theoretical	Daily, monthly and quarterly exams
6	2	Resultant ofnon-Concurrrent, Coplanar force system (BD)	Theoretical	Daily, monthly and quarterly exams
7	2	Equillibrium, free body diagram (F. B. D).	Theoretical	Daily, monthly and quarterly exams
8	2	Equillibrium Conditions (2-D).	Theoretical	Daily, monthly and quarterly exams
9	2	Equillibrium Conditions (3-D).	Theoretical	Daily, monthly and quarterly

				exams
10	2	Friction, Dry Friction.	Theoretical	Daily, monthly and quarterly exams
11	2	Center of Gravity, Centroid (length, area), Centroid of Simple area	Theoretical	Daily, monthly and quarterly exams
12	2	Centroids of Composite areas	Theoretical	Daily, monthly and quarterly exams
13	2	Moment of inertia (Simple and Composite areas).	Theoretical	Daily, monthly and quarterly exams
14	2	Dynamics type of motion, Linear motion with constant speed.	Theoretical	Daily, monthly and quarterly exams
15	2	Linear motion with Constant acceleration.	Theoretical	Daily, monthly and quarterly exams

11.SUBSTRUCTURE	
Required textbooks	1-Engineering Mechanics (Statics) by R.C. Hibbler and S.C. Fan 1997. 2.Engineering Mechanics (Statics) by J.L. Meriam and L.G. Kriage 2002. 1- 3-Vector analysis for engineers(statics) byFedinand P.Beer,E. Russell Johunston and Elliot R. Eisenberg 2004
Key References (Sources)	-1Lecture 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	Virtual Library of the Ministry of Higher Education and Scientific Research

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

Description of Mechanics Course - 2 (Level 1)

The study aims at the mechanics course to clarify the effect of forces on objects in the case of movement and static and to study the stresses and emotions resulting from loads

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies
3.Course Name / Code	MECHANIC-1 METP121))
4. Available forms of attendance	Daily attendance in the lecture hall and laboratories.
5-Term / Year	-2024
6.Number of study hours (total)	60 hours for thesecond semester (4 hours per week)
7.Date of preparation of this description	1/12/2025

8- Objectives of the Article :
Introduce the student to:
1- Provide basic definitions and introductory concepts of mechanical engineering. 2-The student is familiar with the basics of static mechanics and its application in the laboratory. 3- Developing the ability to how to link data with information to obtain the solution of problems.

9. Course Outcomes and Teaching, Learning and Evaluation Methods
A- Knowledge Objectives
1. Understand the methods of calculating the power system. 2- Analyzing the balance of body and structures. 3- Analyzing and understanding the procedures to calculate the center and center of gravity of the body and the second moment of area and mass. (b) The skill objectives of the course. 1. Understanding the kinetic investigation methods of particles and solid body 2- Understand the kinetic investigation methods of particles and solid body. 3-The ability to apply modern knowledge and apply mathematics, science, engineering and technology to the problems and applications of engineering mechanics.
Teaching and Learning Methods
Theoretical lecture (with various means of explanation) Google class room and data show,films , practical lecture (with various means of explanation) , scientific reports. Google meet.Youtube section.
Valuation Methods
1) Course work, including : (daily exam, including the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture , scientific reports, 2) the first semester exam according to the built-in system, 3) the second semester exam according to the built-in system, 4) the final exam with its roles.

Affective and Valuable Objectives
1- Understand and develop professional responsibilities during the work of groups to solve problems and perform experiments in the laboratory. 2-Developing effective communication between the student and the subject teacher during solving problems and giving assignments.

10- Material Structure					
Week	Hours	Intended Learning Outcomes	Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	4	Mechanic -1	Department of Mechanical Technologies	Theoretical + Practical	Daily, Monthly and Quarterly Final Exams

Week	Hours	Module Name/ or Topic Mechanics Course -2	Teaching Method	Method of Evaluation
1	2	Newton's Second Law	Theoretical	Daily, monthly and quarterly exams
2	2	Curvilinear motion	Theoretical	Daily, monthly and quarterly exams
3	2	Angular motion, Relative Motion.	Theoretical	Daily, monthly and quarterly exams
4	2	Work, Energy, Power	Theoretical	Daily, monthly and quarterly exams
5	2	Strength of material: Fundamantal concept, Loads, Stress, Strain, Eelasticity, Plasticity, Deformation	Theoretical	Daily, monthly and quarterly exams
6	2	Hook's Law, Stress-strain curve, type of stress	Theoretical	Daily, monthly and quarterly exams
7	2	Normal stress due to an axial load on 1- Uniformam Cross section area 2- Variable cross section area	Theoretical	Daily, monthly and quarterly exams
8	2	Shear Stress	Theoretical	Daily, monthly and quarterly exams
9	2	Torsional Stress	Theoretical	Daily, monthly and quarterly exams
10	2	Thermal Stress	Theoretical	Daily, monthly and quarterly exams
11	2	Beams, types of loads, types of beams	Theoretical	Daily, monthly and quarterly exams
12	2	Shear force (S.F.) & bending moment (B.M.) of Simple supported beam	Theoretical	Daily, monthly and quarterly exams

		under an-axial load		
13	2	Shear force (S.F.) & bending moment (B.M.) of Simple supported beam under uniform distributed Load.	Theoretical	Daily, monthly and quarterly exams
14	2	Shear force (S.F.) & bending moment (B.M.) of cantilever beam under an-axial load	Theoretical	Daily, monthly and quarterly exams
15	2	Shear force (S.F.) & bending moment (B.M.) of cantilever beam	Theoretical	Daily, monthly and quarterly exams

11.SUBSTRUCTURE	
Required textbooks	1-Engineering Mechanics (Statics) by R.C. Hibbler and S.C. Fan 1997. 2.Engineering Mechanics (Statics) by J.L. Meriam and L.G. Kriage 2002. 3-Vector analysis for engineers(statics) byFedinand P.Beer,E. Russell Johunston and Elliot R. Eisenberg 2004
Key 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	Virtual Library of the Ministry of Higher Education and Scientific Research

12. Course development plan: The development plan is carried out through studies submitted through the annual scientific plan for the development of the course.

Description of Manufacturing Processes Course (1) (Level 1)

After teaching this subject, the learner will be able to: Enumerates the operating cards and orders per unit and per machine and calculates the operating time items and loading programs for the units. Identifies quality control and quality control elements.Learns to make preliminary calculations of operating costs.Distinguish between different types of Yas tools.Illustrates the types of welding methods.Identifies types of blast furnaces.He learns blacksmithing methods and types .

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies
3.Course Name / Code	Manufacturing Processes 1 METP122
4. Available forms of attendance	Daily attendance in the lecture hall and laboratories.
5-Term / Year	-2024
6.Number of study hours (total)	60 hours for the first semester (4 hours per week)
7.Date of preparation of this description	**1 December 2024**

8- Objectives of the Article :
Introduce the student to:
Graduating a middle cadre capable of working in the fields of manufacturing and production and contributing to the following works: 1- Ability to analyze processes into operating elements. 2- Preparing the technological tan between the production units 3- Identify elements of control and quality control. 4- Perform preliminary calculations of operating costs.

9. Course Outcomes and Teaching, Learning and Evaluation Methods
A- Knowledge Objectives
A1- Identifying the production processes of metals and their types. A2- Identify the formation of metals and the theory of formation. A3- Identifying the methods of metal manufacturing. (b) The skill objectives of the course. B 1- Production capacity in the fields of manufacturing and production. B 2-The ability to work on the group for the purpose of completing the work.
Teaching and Learning Methods
Theoretical lecture (with various means of explanation) Google class room and data show,films , practical lecture (with various means of explanation) , scientific reports. Google meet.Youtube section.

Valuation Methods
1) Course work, including : (daily exam, including the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture , scientific reports, 2) the first semester exam according to the built-in system, 3) the second semester exam according to the built-in system, 4) the final exam with its roles.
Affective and Valuable Objectives
6- If the student listens attentively to the professor's explanation 7- The student should pay attention to the calmness and order of the class 8- The student should learn about the importance of learning the material manufacturing processes and its relationship to engineering techniques

10- Material Structure					
Week	Hours	Intended Learning Outcomes	Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	4	Manufacturing Processes	Department of Mechanical Technologies	Theoretical + Practical	Daily, Monthly and Quarterly Final Exams

Week	Hours	Module Name/ or Topic Manufacturing Process Material 1	Teaching Method	Method of Evaluation
1	2	Definition of measurement Units of measurement, error and its causes , methods of measuring the main dimensions, simple conveying measuring devices.	Theoretical	Daily, monthly and quarterly exams
2	2	Vernier calipers, their parts, uses, and types.	Theoretical	Daily, monthly and quarterly exams
3	2	Micrometers, their types, uses, and how to use them.	Theoretical	Daily, monthly and quarterly exams
4	2	Measurement templates and their uses, types, and method of use.	Theoretical	Daily, monthly and quarterly exams
5	2	Measuring angles and side shapes, tools of angles, measuring poles (hyenas), their types.	Theoretical	Daily, monthly and quarterly exams
6	2	Method of measuring the elements of the spirals , the outer and inner diameters and measuring the step and the diameter of the step. Comparative devices, their uses, types of mechanical, electronic.	Theoretical	Daily, monthly and quarterly exams

7	2	Optical projector, with modern measuring aromas (acoustic-frequency measuring devices, digital photovoltaics)	Theoretical	Daily, monthly and quarterly exams
8	2	The refrigerator and its role in industrial development, the shanking process, the tools used and the processes involved in the used cold process, their specifications, the machines and their types, the methods of connecting the workpiece to them, the uses of the files, and the method of cleaning the files.	Theoretical	Daily, monthly and quarterly exams
9	2	Saw cutting, the conditions to be met in the sawing process, the saw weapon, crowns and their types, embryos, the method of their enactment and maintenance, the types of hand hammers heads and the method of installing them.	Theoretical	Daily, monthly and quarterly exams
10	2	Drilling and bulldozing, types of drills, types of prime, types of raymers, how to drill and bulldozing.	Theoretical	Daily, monthly and quarterly exams
11	2	Forms, types, wood used in their manufacture Conditions to be met in the form	Theoretical	Daily, monthly and quarterly exams
12	2	Tools and appliances used in the manufacture of models and molds of aquariums and the method of design of the growth of a simple	Theoretical	Daily, monthly and quarterly exams
13	2	Plumbing, history , main plumbing methods (casting , sand plumbing, briquette plumbing, other plumbing methods advantages of plumbing process.	Theoretical	Daily, monthly and quarterly exams
14	2	Sand plumbing, plumbing sand, its specifications, components, sand for plumbing, used appliances and additives for plumbing sand.	Theoretical	Daily, monthly and quarterly exams
15	2	Turning and tools used in the preparation of sand molds, the process of turning a simple model Complicated. Clay moulds, cement moulds used.	Theoretical	Daily, monthly and quarterly exams

11.SUBSTRUCTURE	
Required textbooks	1- Introduction to Production Engineering, by – Hassan Hussein Fahmy , Jalal Shawky) 2- Principles of metal casting, translation – d. Salah al-Din Muhammad al-Muhanni
Key References (Sources)	1-Methods of Metal Formation, Composition – Dr. Anwar Abdul Wahed Manufacturing Methods Author – Dr. Aref Abu Safia , Dr. Abdul Razzaq Ismail Khader
Recommended books and references	Virtual Library of the Ministry of Higher Education and Scientific Research

12. Course development plan: The development plan is carried out through studies submitted through the annual scientific plan for the development of the course.

Description of Manufacturing Processes Course (2) (Level 1)

After teaching this subject, the learner will be able to: Enumerates the operating cards and orders per unit and per machine and calculates the operating time items and loading programs for the units. Identifies quality control and quality control elements.Learns to make preliminary calculations of operating costs.Distinguish between different types of Yas tools.Illustrates the types of welding methods.Identifies types of blast furnaces.He learns blacksmithing methods and types

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies
3.Course Name / Code	Manufacturing Processes 2 METP123
4. Available forms of attendance	Daily attendance in the lecture hall and laboratories.
5-Term / Year	-2024
6.Number of study hours (total)	60 hours for thesecond semester (4 hours per week)
7.Date of preparation of this description	**1 December 2024**

8- Objectives of the Article :
Introduce the student to:
Graduating a middle cadre capable of working in the fields of manufacturing and production and contributing to the following works: 1- Ability to analyze processes into operating elements. 2- Preparing the technological tan between the production units 3- Identify elements of control and quality control. 4- Perform preliminary calculations of operating costs.

9. Course Outcomes and Teaching, Learning and Evaluation Methods
A- Knowledge Objectives
A1- Identifying the production processes of metals and their types. A2- Identify the formation of metals and the theory of formation. A3- Identifying the methods of metal manufacturing. (b) The skill objectives of the course. B 1- Production capacity in the fields of manufacturing and production. B 2-The ability to work on the group for the purpose of completing the work.
Teaching and Learning Methods
Theoretical lecture (with various means of explanation) Google class room and data show,films , practical lecture (with various means of explanation) , scientific reports. Google

meet.Youtube section.
Valuation Methods
1) Course work, including : (daily exam, including the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture , scientific reports, 2) the first semester exam according to the built-in system, 3) the second semester exam according to the built-in system, 4) the final exam with its roles.
Affective and Valuable Objectives
9- If the student listens attentively to the professor's explanation 10- The student should pay attention to the calmness and order of the class 11- The student should learn about the importance of learning the material manufacturing processes and its relationship to engineering techniques

10- Material Structure					
Week	Hours	Intended Learning Outcomes	Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	4	Manufacturing Processes-2	Department of Mechanical Technologies	Theoretical + Practical	Daily, Monthly and Quarterly Final Exams

Week	Hours	Module Name/ or Topic Manufacturing Process Material 2	Teaching Method	Method of Evaluation
1	2	Introducing the student to the various measuring tools and devices in the laboratory, the precautions to be followed at work, and the conditions to be met by the measurement laboratories.	Theoretical	Daily, monthly and quarterly exams
2	2	Measurement using the vernier foot, identifying the types of feet in terms of accuracy, use and extension of measurement, how to measure using the feet, and measuring different models.	Theoretical	Daily, monthly and quarterly exams
3	2	Measuring using micrometers, identifying types of micrometers in terms of accuracy, use and field of measurement, measuring using micrometers for different models.	Theoretical	Daily, monthly and quarterly exams
4	2	Measurement templates, identifying the different sets of measurement templates, how to assemble them to obtain a specific dimension, how to check the accuracy of the micrometer using measurement templates.	Theoretical	Daily, monthly and quarterly exams
5	2	Comparators, identifying different comparison devices (mechanical, electronic and optical) and making different measurements on each of	Theoretical	Daily, monthly and quarterly

		them.		exams
6	2	Measure angles , identify the devices and the number used to measure angles, use them to make different measurements of certain angles.	Theoretical	Daily, monthly and quarterly exams
7	2	The projector , identifying the parts of the device and its uses , measuring the longitudinal dimensions, measuring the angles of different models.	Theoretical	Daily, monthly and quarterly exams
8	2	Measuring poles (hyenas) , identifying different measuring poles, using them by taking measurements	Theoretical	Daily, monthly and quarterly exams
9	2	Measuring screws (screws, identifying the devices and tools used, making measurements of the various screw elements (outer diameter, inner diameter, step diameter, tooth step).	Theoretical	Daily, monthly and quarterly exams
10	2	Using various previous measurement tools by making measurements of the same dimensions and making a comparison of the results.	Theoretical	Daily, monthly and quarterly exams
11	2	Identify sand laboratory devices, standard sand sample conditions and use the standard sand sample preparation device to prepare samples for various tests (tensile pressure, bending).	Theoretical	Daily, monthly and quarterly exams
12	2	Measuring the percentage of moisture in sand (by drying method, by chemical reaction method).	Theoretical	Daily, monthly and quarterly exams
13	2	Testing the permeability of the plumbing sand and comparing the results calculated with the experiment with the results calculated from the tables.	Theoretical	Daily, monthly and quarterly exams
14	2	Testing the ratio of binder (mud) in sand.	Theoretical	Daily, monthly and quarterly exams
15	2	Testing the degree of fineness relative to the size of the sand grain, calculating the softness number.	Theoretical	Daily, monthly and quarterly exams

11.SUBSTRUCTURE	
Required textbooks	1- Introduction to Production Engineering, by – Hassan Hussein Fahmy , Jalal Shawky) 2- Principles of metal casting, translation – d. Salah al-Din Muhammad al-Muhanni
Key References (Sources)	1-Methods of Metal Formation, Composition – Dr. Anwar Abdul Wahed Manufacturing Methods Author – Dr. Aref Abu Safia , Dr. Abdul Razzaq Ismail Khader
Recommended books and references	Virtual Library of the Ministry of Higher Education and Scientific Research

12.Course development plan: The development plan is carried out through studies submitted through the annual scientific plan for the development of the course.

Description of the course of the properties of materials 1 (first level)

Material properties is the science that seeks to understand different materials by studying their composition and properties. This science revolves around the relationship between the structure of the material and its engineering properties, which contributes to the development of new materials that meet the needs of different industrial applications.This also includes the study of physical properties such as hardness, electrical and thermal conductivity, and thermal expansion and how they are measured and their impact on the behavior of the material. It also addresses chemical properties such as reaction with other materials, combustibility, and chemical stability, and investigates how chemical reactions affect the properties and safe use of materials. The lesson also includes the classification of materials into types such as metals, polymers, ceramics, and composites, and reviews the differences between them and their practical applications. In addition, material testing methods are recognized to determine their properties and ensure their quality. The aim of the lesson is to understand how to select the right materials based on their characteristics to meet specific needs in practical applications.

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies/ Production
3. Course Name / Code	Material Properties-1METP124
4-Available forms of attendance	Daily attendance in the lecture hall.
5-semester/ year	-2024
6. Number of study hours (total)	60 Hours per year (2 hours per week)
7.Date of preparation of this description	1 December 2024

8- Objectives of the Article :

Introduce the student to:

1- Ability to recognize the properties of engineering materials
2- Supervising the operations and tests of geometric properties, crystalline and amorphous structures
3- Ability to supervise the measurement of geometric properties
4- The student's ability to understand the relationship between the structure of the material and its physical and chemical properties.
5- The student understood how to analyze and interpret the behavior of materials under different conditions such as pressure and temperature.
6- The student's ability to choose the right materials for different engineering applications based on their properties.

7- The student knows how to improve the properties of materials by addressing their chemical and physical composition.

9. Course Outcomes and Teaching, Learning and Evaluation Methods

Knowledge Objectives

- Acquiring theoretical and practical knowledge in various practical approaches in the field of mechanical engineering
- Recognize the physical properties of metals
- Recognize the mechanical properties of metals
- How to use chemical coating for metals
- How to take tests for metals

Teaching and Learning Methods

- Lecturing theoretically
- Using the data show
- Use of explanatory and educational videos
- Using the method of searching for a topic (scientific reports) and discussing it in the room
- Presenting a specific problem and providing appropriate solutions to it

Valuation Methods

- The work of the year includes : (daily exam at the beginning of the lecture and includes the topic of the previous lecture, oral exams during the lecture with the same topic of the lecture , scientific reports.
- First Semester Examination
- Chapter 2
- Final exam with its courses

Affective and Valuable Objectives

- Appreciate the importance of material properties in design and manufacturing.
- Promote environmental responsibility and the use of sustainable materials.
- Encourage teamwork and collaboration.
- Establish professional awareness and work ethics.
- Stimulate interest in the material as a basis for understanding the performance of mechanical components

10- Material Structure

Week	Hours	Intended Learning Outcomes	Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	2	Material Properties-1	Department of Mechanical Technologies/Production	Theoretical	Exams + Scientific Reports

Week	Hours	Module Name/ or Topic Properties of Materials 1	Teaching Method	Method of Evaluation
1	2	Definition of Engineering Materials	Theoretical	Exams + Scientific Reports
2	2	Bonds in engineering materials and their impact on the properties of materials	Theoretical	Exams + Scientific Reports
3	2	Crystalline and amorphous materials.	Theoretical	Exams + Scientific Reports
4	2	The most important crystal systems are the body centered cube (BCC), facial centered cube (FCC) and the packed hexagon (CPH). Calculate the atomic crowding coefficient of the three crystalline systems.	Theoretical	Exams + Scientific Reports
5	2	Material Properties First: Mechanical Properties Elongation Strength, Stress , Strain, Stress Curve - Strain (Elongation Strength	Theoretical	Exams + Scientific Reports
6	2	Week 5 Continuation	Theoretical	Exams + Scientific Reports
7	2	Tensile Test, Elastic Modulus, Yonk Modulus, Yield Point, Yield Strength, Tensile Strength, Proven Stress.	Theoretical	Exams + Scientific Reports
8	2	Hardness and its test methods Brinell, Vickers .	Theoretical	Exams + Scientific Reports
9	2	Rockwell hardness test method, the relationship between hardness and tensile strength. How to use Salad Conversion Schedules.	Theoretical	Exams + Scientific Reports
10	2	The continuation of the ninth week.	Theoretical	Exams + Scientific Reports
11	2	Thermal properties: temperature , heat sources, heat transfer methods, temperature and methods of measuring it	Theoretical	Exams + Scientific Reports

12	2	Electrical Properties Electrical Conductivity Conductors , Semiconductors , Insulators Ionizing Materials, Insulators, Metallic Materials Factors Affecting Electrical Conductivity.	Theoretical	Exams + Scientific Reports
13	2	Magnetic Properties Types of magnets , properties of faeces, ferromagnetic materials, paramagnetic materials, materials Magnetic Daya Magnetic Hysteresis	Theoretical	Exams + Scientific Reports
14-15	2	Chemical Properties of Materials (Corrosion , Electrochemical Chain , Oxidation)	Theoretical	Exams + Scientific Reports

11.SUBSTRUCTURE	
Required textbooks	. Properties of Materials, Written by :Maen Yahya Al-Hamdani / Hashem Kazem Al-Jawahiri
Key References (Sources)	1- Principles of metals and materials engineering. S. Bailey , Translation – Dr. Hussein Baqer. 2-Engineering Metallurgy (Applied Physical Metallurgy). A. Hickens, Translation – George Yacoub , Reda Mohamed Ali . 3- Metals : their structure, properties and heat treatment . Dr. J. Degerol . A Uleman Translation – Dr. Jaafar Taher Al-Haidari , Adnan Naama 4- Engineering materials and their tests . Dr. Qahtan Khalaf Al-Khazraji , Adel Mahmoud Hassan , Abdul Jawad Mohammed Al-Sharif 5- Properties of engineering materials. Dr. Sabah Amin Karkji , Dr. Walid Mohammed Saleh , Dr. Talib Hussein Al-Sharif .
Recommended books and references	Virtual Library of the Ministry of Higher Education and Scientific Research

12. Course development plan: The development plan is carried out through studies submitted through the annual scientific plan for the development of the course.

Description of the course of the properties of materials 2 (first level)

Material properties is the science that seeks to understand different materials by studying their composition and properties. This science revolves around the relationship between the structure of the material and its engineering properties, which contributes to the development of new materials that meet the needs of different industrial applications.This also includes the study of physical properties such as hardness, electrical and thermal conductivity, and thermal expansion and how they are measured and their impact on the behavior of the material. It also addresses chemical properties such as reaction with other materials, combustibility, and chemical stability, and investigates how chemical reactions affect the properties and safe use of materials. The lesson also includes the classification of materials into types such as metals, polymers, ceramics, and composites, and reviews the differences between them and their practical applications. In addition, material testing methods are recognized to determine their properties and ensure their quality. The aim of the lesson is to understand how to select the right materials based on their characteristics to meet specific needs in practical applications.

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies/ Production
3. Course Name / Code	Material Properties-2METP125
4-Available forms of attendance	Daily attendance in the lecture hall.
5-semester/ year	-2024
6. Number of study hours (total)	30 hours per class (2 hours per week)
7.Date of preparation of this description	1 December 2024

8- Objectives of the Article :

Introduce the student to:

1- Ability to recognize the properties of engineering materials
2- Supervising the operations and tests of geometric properties, crystalline and amorphous structures
3- Ability to supervise the measurement of geometric properties
4- The student's ability to understand the relationship between the structure of the material and its physical and chemical properties.
5- The student understood how to analyze and interpret the behavior of materials under different conditions such as pressure and temperature.
6- The student's ability to choose the right materials for different engineering applications based on their properties.
7- The student knows how to improve the properties of materials by addressing their chemical and physical composition.

9. Course Outcomes and Teaching, Learning and Evaluation Methods
Knowledge Objectives
• Acquiring theoretical and practical knowledge in various practical approaches in the field of mechanical engineering • Recognize the physical properties of metals • Recognize the mechanical properties of metals • How to use chemical coating for metals • How to take tests for metals
Teaching and Learning Methods
• Lecturing theoretically • Using the data show • Use of explanatory and educational videos • Using the method of searching for a topic (scientific reports) and discussing it in the room • Presenting a specific problem and providing appropriate solutions to it
Valuation Methods

11. Infrastructure	
Required textbooks	Machine parts V. Dobrovolsky Zablonski and fishmonger
Key References (Sources)	Mechanical Engineering Design" by J.E. Shigley
Recommended books and references	Virtual Library of the Ministry of Higher Education and Scientific Research

Engineering Drawing-2 Course Description (Level 1)

Qualifying the student so that he is able to deal with the language of drawing,understanding engineering plans or implementing them.

1-Educational Institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies
3. Course Name / Code	ECP-2 METP126
4-Available forms of attendance	Attendance in the halls and studio of the department
5-semester/ year	2024-2025
6. Number of study hours (total)	45 hours per class (3 hours per week)
7.Date of preparation of this description	**1 December 2024**

8.Objectives of the Article : Introduce the student to: 1-Introducing the student to the importance of engineering drawing and its relationship to other engineering materials 2- Developing the student's mental and motor abilities in drawing simple and complex shapes 3- Expanding the horizons of his imagination of geometric shapes and complexes to identify their components, procedures, 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

9. Course Outcomes and Teaching, Learning and Evaluation Methods
Knowledge Objectives 1-The student should recognize the importance of engineering drawing - 2. The student learns how to imagine geometric shapes - 3-The student should distinguish the mechanical components and parts and the principle of their work
Teaching and Learning Methods
Theoretical lecture (with various means of explanation) google class room, practical lecture (with various means of explanation) , scientific reports. google meet.Youtube section.
Valuation Methods
1) The work of the year includes : (The daily exam at the beginning of the meeting, including the subject of the previous lecture, the oral exams during the lecture with the same subject of the lecture, scientific reports, 2) The first semester exam, 3) The second semester exam, 4) The final exam with its courses.

10 : Course Structure				
Week	Hours	Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	3	Department of Mechanical Technologies	experimental	Examinations
(2)	3	Projection theory - drawing simple projections	experimental	Examinations
3-4	3	Putting Dimensions on Perspective and Projections	experimental	Examinations
5-7	3	Conclusion of the third projection from Muscatin	experimental	Examinations
8-10	3	Cutting Theory - Shapes of Cutting Lines by Material - Drawing Cutting Projections	experimental	Examinations
11-13	3	Engineering Operations - Dimensioning Applications to Previous Concepts Drawing Cut-Off Projections from a Specific Projection	experimental	Examinations
14-15	3	Partially cut projections, applications and projects drawing	experimental	Examinations

11. Infrastructure	
Required textbooks	Engineering Drawing – Abdul Rasool Al Khafaf
Key References (Sources)	E-books
Recommended books and references	1- Virtual Library of the Ministry of Higher Education and Scientific Research Manual of engineering drawing - Simmons C.H., Maguire D. E. - Reference in Engineering Drawing Dr. Mahmoud Saleh Zamout

Description of Workshopes 2 Course (Mechanical) (Level 1)

After the end of teaching this subject, the learner will be able to: Identifying the various methods and installing the parts of the stalls in the workshops and working on them, casting metals and their importance, identifying the turning machine, its types and parts, and acquiring the skill to deal with machines and devices .

1-Educational Institution	Northern Technical University/Kirkuk Technical Institute
2-Scientific Department/ Center	Department of Mechanical Technologies
3-Course Name /Code	Workshopes-2(Mechanical) METP127
4-Available Attendance Forms	Attendance at workshops
5-Term / Year	-2024
6-Number of study hours (total)	90hours for the second semester (6 hours per week)
7-Date this description was prepared	**1/12/2025**

Objectives of the Article :
Introduce the student to:
Providing and qualifying the student with basic information in the subject of engineering workshops
Familiarity with the operation and knowledge of machine parts and workshops(welding , plumbing, blacksmithing, turning)
Conducting practical exercises and how to use the tool

9. Course Outcomes and Teaching, Learning and Evaluation Methods
Knowledge Objectives 1-Identifying the various methods and installing the parts of the machines in the workshops 2-Know how to deal with the number and machines and their parts in addition to how to make measurements 3-Ability to optimally test the appropriate method of work from among the above methods.
Teaching and Learning Methods
Practical lecture (with various means of explanation) , working on the operation of the machines and applying the exercises to them.
Valuation Methods
1) Course work, including : daily practical exercises, reports .
Affective and Valuable Objectives
1-Analysis, reasoning and comparison 2-Observation accuracy and depth of thought 3-Speed of information retrieval and intuition of conclusion 4-Speed and accuracy of decision making 5-Improving Digital Values

10- Material Structure					
Week	Hours	Intended Learning Outcomes	Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	6	Parameter 1	Department of Mechanical Technologies	Practical,	Practical exams

Week	Hours	Module Name/ or Topic Mechanical Workshopes 1	Teaching Method	Method of Evaluation
1	2	-Welding Occupational safety and security precautions, gas welding, equipment used and how to install and adjust it, other auxiliary tools, gases used and their specifications , welding wires, types and measurements , other auxiliary materials, welding equipment,types of flame, method of igniting and adjusting the required flame, and workmanship, rinsing and cleaning the edges to be welded.	Practical	Practical exams
2	2	Practical exercises: Welding of opposing surfaces, perpendicular surfaces, oblique surfaces, circle welding, longitudinal and transverse cutting	Practical	Practical exams
3	2	Welding equipment, practical training on the use of the electric arc in welding the various surfaces used , electrodes and the method of installation , practical training.	Practical	Practical exams
4	2	CO2 welding and gas cutting process, equipment used and precautions available , CO2 welding exercises	Practical	Practical exams
5	2	Gas Protected Arc Welding Operations Training (TIG,MIG)	Practical	Practical exams
6	2	Assembled drills using different cutting and welding processes	Practical	Practical exams
7	2	5- Plumbing : Bending billet cutting equipment, rolling machine, grooves and hand tools, manual bending and bending of the billet, normal and existing bending and drawing method, simple solitary calculation of the solitary of crosswork, cross-cylinder exercises	Practical	Practical exams
8	2	Training on the calculation of the solitude of	Practical	Practical

		intersecting works, doing exercises for two intersecting cylinders		exams
9	2	Incomplete cone and cone singleness	Practical	Practical exams
10	2	6-Turning : Lathe specifications, uses, accessories, methods of installation , operation of the lathe , types of lathe pens and the use of each	Practical	Practical exams
11	2	Turning operations: Flat turning, fairness, center work, simple step-up workout, use of measuring tools	Practical	Practical exams
12	2	Turning the external loot in different ways, explaining the laws of each method , and doing an exercise for the external loot.	Practical	Practical exams
13	2	Making different teeth externally (triangle) Making an exercise that includes the triangle tooth, making the outer square tooth and doing an exercise	Practical	Practical exams
14	2	Cutting speeds, selection and use of their own tables	Practical	Practical exams
15	2	Implementation of training on decentralized turning and the use of the quadruple sample	Practical	Practical exams

11.SUBSTRUCTURE	
Required textbooks	Foundation Workshops/General Organization for Technical Education and Vocational Training/ Kingdom of Saudi Arabia
Key References (Sources)	Production Operations Principles/Dr. Qahtan Khalaf Al-Khazraji
Recommended books and references	Virtual Library of the Ministry of Higher Education and Scientific Research

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

Description of Electrical Technology Course (Level 1)

The student learns about the basics of electricity, resistors, coils, electronics technology, Kirchhoff's law, Ohm's law and their applications

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies
3. Course Name / Code	Electrical Technology METP128
4-Available forms of attendance	Attendance in the halls and electrical laboratory
5-semester/ year	2024-2025
6. Number of study hours (total)	45 hours per class (3 hours per week)
7.Date of preparation of this description	1 December 2024

8.Objectives of the Article : Introduce the student to: 1-Defining the important definitions of current, voltage and resistance. 2- Identifying the devices for measuring resistors and capacitors

9. Course Outcomes and Teaching, Learning and Evaluation Methods
Knowledge Objectives
1-Providing the student with theoretical information on standard schemes 2-Introducing the student to the laboratory equipment of the air conditioning and refrigeration units
Marathi Goals
1- Providing the student with the skill of understanding electrical circuits and their basics. 2- Conducting engineering calculations for electrical connection applications for devices
Teaching and Learning Methods
Theoretical lecture (with various means of explanation) google class room, practical lecture (with various means of explanation) , scientific reports. google meet.Youtube section.
Valuation Methods
1) The work of the year includes : (the daily exam at the beginning of the semester, including the subject of the previous lecture, the oral exams during the lecture with the same subject of the lecture, scientific reports, 2) the first semester exam, 3) the second semester exam, 4) the final exam with its courses.

10 : Course Structure				
Week	Hours	Unit Name/Electrical Technology	Teaching Method	Method of Evaluation
Weekly	3	Department of Mechanical Technologies	Practical,	STKs Examinations

1-2.	3 hours per week	Input in Electrical Technology, Definitions , Ampere , Current , Voltage ,Resistance	Theoretical +Practical	Daily and monthly exams
3-4	3 hours per week	Ohm's Law and its Applications	Theoretical +Practical	Daily and monthly exams
7 -5	3 hours per week	Circuit Contents Resistance Coil, Connecting capacitors respectively , Power calculations, power factor.	Theoretical +Practical	Daily and monthly exams
8-9	3 hours per week	Engine Selection,Maintenance Engines and parts repair.	Theoretical +Practical	Daily and monthly exams
10-11	3 hours per week	ernating current, types of alternating waves, direct current	Theoretical +Practical	Daily and monthly exams
12-13	3 hours per week	electromagnetism, magnetic field, flood density Magnetic	Theoretical +Practical	Daily and monthly exams
14	3 hours per week	Multi-phase system	Theoretical +Practical	Daily and monthly exams
15	3 hours per week	Cutting equipment and motor operation, Maintenance,	Theoretical +Practical	Daily and monthly exams

11. Infrastructure	
Required textbooks	. Electrical Technology by Therage .Electrical Technology by Hayke Electrical Engineering theory and practical Electrical Installation work by Franc.
Key References (Sources)	Virtual Library of the Ministry of Higher Education and Scientific Research
Recommended books and references (scientific journals, reports,....)	The virtual library of the Ministry of Higher Education and Scientific Research - There are no books in the electronic library of the Institute

12: Course Development Plan
• Benefiting from the virtual library of the Ministry of Higher Education and Scientific Research.
•Benefiting from scientific websites in the development of the course through the presentation of scientific knowledge and developments in the field of the course. •Linking the theoretical and practical part of the course through the material of the student project.

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English Course Description (Level 2)

This course deals with the definition of the basics of the English language and the definition of times in the English language (past , present , future) in all its forms (simple , continuous, complete , continuous) as well as the definition of the tools of the question Wh as well as the definition of how to add in the English language.

1- Educational Institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies
3- Course Name /Code	English NTU200
4- Available Attendance Forms	Attendance in the halls of the department
5- Term / Year	-2024
6- Number of study hours (total)	30hours (2 hours per week)
7- Date this description was prepared	1 December 2024

8- Objectives of the course: Introducing the student to:
1- Introducingthe basics of the English language
2- Identifying the past tense in the English language
3- Introducing the present tense in English
4- Identifying the future time in the English language
5-Identifying the tools of the question Wh

9. Course Outcomes and Teaching, Learning and Evaluation Methods
Knowledge Objectives 1-Introducing the basics of the English language 2- Identifying the past tense in the English language 3- Introducing the present tense in English 4- Identifying the future time in the English language 5- Identifying the tools of the question Wh
Teaching and Learning Methods
Theoretical lecture (with various means of explanation) google class room, practical lecture (with various means of explanation) , scientific reports. google meet.Youtube section.
Valuation Methods
1) The work of the year includes : (the daily exam at the beginning of the meeting, including the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture, scientific reports, 2) the first semester exam, 3) the second semester exam, 4) the final exam.

10. Material Structure					
Week	Hours	Intended Learning Outcomes	Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	2	(English)	Department of Mechanical Technologies	Theoretical	STKs Examinations

Week	Hours	Module Name/ or Topic **English**	Teaching Method	Method of Evaluation
1	2	Definition of the basics of the English language	Theoretical	Examinations
2	2	Introducing the wording of sentences in English	Theoretical	Examinations
3	2	Present Simple and Continuous Time	Theoretical	Examinations
4	2	Present perfect and continuous perfect time	Theoretical	Examinations
5	2	Simple and continuous past time	Theoretical	Examinations
6	2	Complete and continuous past time	Theoretical	Examinations
7	2	Simple and continuous future time	Theoretical	Examinations
8	2	Full and continuous future time	Theoretical	Examinations
9	2	What question tool	Theoretical	Examinations
10	2	Why Question Tool	Theoretical	Examinations
11	2	Where Question Tool	Theoretical	Examinations
12	2	Ask tool when	Theoretical	Examinations
13	2	How to add in English	Theoretical	Examinations
14	2	Job and Workplace	Theoretical	Examinations
15	2	Comprehensive review	Theoretical	Examinations

11. Infrastructure	
Required textbooks	Required textbooks
Key References (Sources)	Key References (Sources)
Recommended books and references	Recommended books and references

Computer Course Description (2) (Level 2)

The course focuses on teaching the basics and enabling students to use AutoCAD in drawing and designing accurate 2D and 3D geometric drawings that they need in their areas of specialization including basic commands such as lines , geometric shapes, dimensions, and fillers.

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Techniques
3. Course Name / Code	Computer(2) 201 METP
4-Available forms of attendance	Daily
5-semester/ year	2024
6. Number of study hours (total)	30 hours (2 hours per week)
7.Date of preparation of this description	1 December 2024

8.Objectives of the Article :

After the end of teaching this subject, the learner is able to:

1. Identify the AutoCAD working environment and methods of accessing commands and instructions, storing and opening files.
2- Drawing applications in his field of specialization using the two-dimensional and three-dimensional engineering drawing program (AutoCAD 2D\3D)

9. Course Outcomes and Teaching, Learning and Evaluation Methods

Knowledge Objectives

1-The student should get acquainted with theAutoCAD program
2-The student should get acquainted with the work environment of the program
3- The student learns the technique of drawing using AutoCAD program

Marathi Goals

1- Teaching the student the skill of using the calculator and artificial intelligence
2- Mastering the use of networks and websites

Teaching and Learning Methods

Theoretical lecture (with various means of explanation) google class room, practical lecture (with various means of explanation) , scientific reports. google meet.Youtube section.

Valuation Methods

1) The work of the year includes : (The daily exam at the beginning of the meeting, including the subject of the previous lecture, the oral exams during the lecture with the same subject of the lecture, scientific reports, 2) The first semester exam, 3) The second semester exam, 4) The final exam with its courses.

10- Material Structure				
Week	Hours	Module / Course Name or Topic	Teaching Method	Evaluation method
Weekly	HOURS	Computer-2	Practical,	STKs Examinations
1-2.	2	Security and network:What ia anet work , tupes of network ,basic network components ,network security basics, understandidng networks threats, network troubleshooting	Theoretical +Practical	Daily and monthly exams
3-4	2	E-commerce :concepts of electronics banking ervices, Phone pankigs, SMS bankings, electronics alerts , mobile bankings	Theoretical +Practical	Daily and monthly exams
5-6	2	Computer trouble shooting : identifying and solving common hardware and soft ware and software problem that computers users encounter, basic troubleshooting techniques and tools for diagnosing and resolving issues	Theoretical +Practical	Daily and monthly exams
8-7	2	Introduction to AI :defenations of AI, history of AI ,AI techniques and approaches , challenges ethical considerations.	Theoretical +Practical	Daily and monthly exams
9-10	2	AI in our daily lives: AI in smartohones and virtual assistants like siri or google assistant.	Theoretical +Practical	Daily and monthly exams
11	2	Application of AI: education , healthcare , finance, transportation, marketing and advertising.	Theoretical +Practical	Daily and monthly exams
13	2	AI and security :how AI affects social, AI and international relations , AI and the future of humanity.	Theoretical +Practical	Daily and monthly exams
14	2	Ethical challenges in AI: AI ethics , privacy and surveillance, the impact of AI on the job markets	Theoretical +Practical	Daily and monthly exams
15	2	The future of AI: future trends in AI , recent research and emerging technologies	Theoretical +Practical	Daily and monthly exams

11. Infrastructure	
Required textbooks	. Electrical Technology by Therage .Electrical Technology by Hayke Electrical Engineering theory and practical Electrical Installation work by Franc.
Key References (Sources)	Virtual Library of the Ministry of Higher Education and Scientific Research
Recommended books and references	- The virtual library of the Ministry of Higher Education and Scientific Research - There are no books in the electronic library of the Institute

12: Course Development Plan
• Benefiting from the virtual library of the Ministry of Higher Education and Scientific Research. • Utilization of scientific websites in the development of the course through the presentation of scientific knowledge and developments in the field of the course. • Linking the theoretical and practical part of the course through the material of the student project.

Arabic Course Description (Level 2)

The Arabic language is studied and mastered because it is the language of the Qur 'an and Islam. Our curriculum includes a number of basics that are included in a specific ministerial curriculum, including: (sections of speech -punctuation -hamza and its joints, number,) Divided into a full semester, it serves the scientific and humanitarian departments and develops the student's linguistic and cultural credentials.

1-Educational Institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department / Center	Department of Memanic Techniques
3-Course Name /Code	Arabic NTU202
4- Available forms of attendance	Daily
5-Term / Year	2025 - 2024
6- Number of study hours (total)	(2 hours per week)
7- Date of preparation of this description	**1/12/2024**

8- Objectives of the Article: Introduce the student to:
1- Introduce the student to the correct use of language and stay away from error. 2- Teach him to distinguish between noun, verb, and letter, and how to use punctuation marks appropriately. 3- Master the correct and proper wording during writings and correspondence from the basics of language study.

9- Course outputs and teaching, learning and evaluation methods
Knowledge Objectives 1- Identifying the differences among learners, while identifying the behaviors of each learner to lead them to success. 2. Acquiring the correct language drafting skill. 3. Distinguishing between error and right in writing numbers.
Teaching and Learning Methods

Theoretical lecture (with various means of explanation) google class room, , scientific reports. google meet.Youtube section.
Valuation Methods
1) The work of the year includes : (The daily exam at the beginning of the meeting, including the subject of the previous lecture, the oral exams during the lecture with the same subject of the lecture, scientific reports, 2) The first semester exam, 3) The second semester exam, 4) The final exam with its courses.
Behavioral objectives or learning outcomes
4- The student is aware of the importance of the Arabic language as the main nerve of our society. 5- Distinguishing between error and right in the tasks assigned to him, such as tests, correspondence and correspondence. 6- Build his linguistic queen and strengthen her with evidence that supports his opinion and is consistent with the information he received.

10: Course Structure					
Week	Hours	Intended Learning Outcomes	Module Name/ Topic	Teaching Method	Method of Evaluation
Weekly	2	Arabic	Department of Mechanical Technologies	Theoretical	STKs Examinations

Week	Hours	Module Name/ or Topic Arabic	Teaching Method	Method of Evaluation
1	2	Introduction to Linguistic Errors	Explanation of the lecture in the presence of explanatory means	STKs Examinations
2	2	Elongated and Compartmented Thousand Writing Rules	Explanation of the lecture in the presence of explanatory means	STKs Examinations
3	2	Alzad and Alzaa	Explanation of the lecture in the presence of explanatory means	STKs Examinations
4	2	Hamza Writing	Explanation of the lecture in the presence of explanatory means	STKs Examinations
5	2	Sorry. Punctuation is important.	Explanation of the lecture in the presence of explanatory means	STKs Examinations
6	2	Name and verb and distinguish between them	Explanation of the lecture in the presence of explanatory	STKs Examinations

			means	
7	2	Effects	Explanation of the lecture in the presence of explanatory means	STKs Examinations
8	2	Number	Explanation of the lecture in the presence of explanatory means	STKs Examinations
9	2	Common Errors Apps	Explanation of the lecture in the presence of explanatory means	STKs Examinations
10	2	Nun and Tanween	Explanation of the lecture in the presence of explanatory means	STKs Examinations
11	2	Formal Aspects of Administrative Letter	Explanation of the lecture in the presence of explanatory means	STKs Examinations
12	2	Prepositional Meanings	Explanation of the lecture in the presence of explanatory means	STKs Examinations
13	2	Solar and lunar letters	Explanation of the lecture in the presence of explanatory means	STKs Examinations
14	2	Ta Al-Marbouta and Al-Tawila	Explanation of the lecture in the presence of explanatory means	STKs Examinations
15	2	Al-Ta Al-Mofatah	Explanation of the lecture in the presence of explanatory means	STKs Examinations

11. Infrastructure	
Required textbooks	**Key References**
Key References (Sources)	Key References Scientific sources within the World Wide Web.
Recommended books and references	Virtual Library of the Ministry of Higher Education and Scientific Research

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

Description of the course of crimes of the Baath regime in Iraq (second level)

Introducing the student to the crimes committed by the Baath Party regime in Iraq in accordance with the decisions of the Iraqi Criminal Court.

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Techniques/ Production
3. Course Name / Code	Resurrection Crimes 203NTU
4-Available forms of attendance	Daily
5-semester/ year	-2024
6. Number of study hours (total)	30 hours per class (2 hours per week)
7.Date of preparation of this description	1 December 2024

8.Objectives of the Article :

1-Identifying the crimes committed by the defunct regime
2- Providing the student with basic concepts related to types of crimes
3- Knowing the places and names of prisons in various governorates of Iraq
4- Knowing the number of victims in the city of Halabja
5-Addressing the effects of war

9. Course Outcomes and Teaching, Learning and Evaluation Methods
Knowledge Objectives 1-The student should know the nature of the criminal system of resurrection 2-The student should identify some of the inhuman methods used by the Baathist regime 3-The student should learn the most important criminal judgments issued against the members of this system Marathi Goals 1- Providing the student with the correct information about the legitimate rights of the citizen 2. How to deal with such systems within legal and democratic frameworks
Teaching and Learning Methods
Theoretical lecture (with various means of explanation) google class room, practical lecture (with various means of explanation) , scientific reports. google meet.Youtube section.
Valuation Methods
1) The work of the year includes : (The daily exam at the beginning of the meeting, including the subject of the previous lecture, the oral exams during the lecture with the same subject of the lecture, scientific reports, 2) The first semester exam, 3) The second semester exam, 4) The final exam with its courses.

10- Material Structure				
Week	Hours	Module / Course Name or Topic	Teaching Method	Evaluation method
Weekly	HOURS	Crimes of the Baath regime in Iraq	practical	Examinations
1-6.	2	A general idea of the article of the Baath crimes, the crimes of the Baath regime in accordance with the Iraqi Supreme Criminal Court Law 2005. The concept of crimes and their divisions, the definition of crime, language, definition, terminology, definition in the science of law, psychology, sociology, and the science of Sharia. The sections of Crimes, International Crime, Political Crime, Social Crimes, Authority and Government Crimes, and Psychological Crimes. Defining the crimes of freedom of religion and belief, defining the crime of confiscation of funds, the crime of displacement, environmental crimes, and describing violations of human rights. Crimes of the Baath regime according to documentation in accordance with the Iraqi Supreme Criminal Court Law 2005. Types of international crimes, genocide crimes.	Theoretical +Practical	Daily and monthly exams
7-9	2	Crimes against humanity, war crimes. Explanation of decisions issued by the Supreme Criminal Court. Psychological and social crimes and their effects. The responsibility of the state in achieving a balance between the public interest and the interest of individuals. Violations of the Baathist regime in Iraq, violations of Iraqi laws, forms of human rights violations and crimes of authority. Explain the mechanisms of psychological crimes, and explain the effects of psychological crimes. Definition of Social Crimes.	Theoretical +Practical	Daily and monthly exams
10-12	2	Explaining some of the decisions of political and military violations of the regime of	Theoretical +Practical	Daily and monthly

		some, and identifying the places of prisons of theBaath regime. Environmental crimes of the Baath regime. War pollution, radiation and mine explosions. Destruction of cities and villages (scorched earth policy.) Crimes of drying Al-Hawar by the Baath regime. And dredging palm groves, trees and crops. Crimes of mass graves. The events of the cemeteries of the pestilence Collective. The events of 1963, the events of the Iran-Iraq War, the events of 1983 and their relationship to mass graves.		exams
13-15	2	Statement of the events of the popular uprising. The chronological classification of mass graves extending from 2003 to 1963 Genocide cemeteries dating back to the events of 1963 Genocide cemeteries related to the Iran-Iraq war. The mass extermination cemetery of the Barzanian Kurds of 1983. The mass extermination cemeteries of the victims of the Anfal massacre of 1988-1987. Explanation of the events of the mass extermination cemetery of the victims of the popular uprising. 1991	Theoretical +Practical	Daily and monthly exams

11. Infrastructure	
Required textbooks	Ministry of Higher Education Book
Key References (Sources)	Virtual Library of the Ministry of Higher Education and Scientific Research
Recommended books and references	The virtual library of the Ministry of Higher Education and Scientific Research - There are no books in the electronic library of the Institute

12: Course Development Plan
• Benefiting from the virtual library of the Ministry of Higher Education and Scientific Research. • Utilization of scientific websites in the development of the course through the presentation of scientific knowledge and developments in the field of the course. • Linking the theoretical and practical part of the course through the material of the student project.

Description of the Ethics Course (Level 2)

Introducing the student to the origins of human values when carrying out the profession and the basic principles and ethics that emerge when dealing with people.

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/Center	Department of Mechanical Techniques
3. Course Name / Code	Ethics **NTU204**
4-Available forms of attendance	Daily
5-semester/ year	2024
6. Number of study hours (total)	30 hours (2 hours per week)
7.Date of preparation of this description	**December 02, 2024**

8.Objectives of the Article :

1- Teaching the student the highest human values and adhering to them as the basic standard in controlling successful human behavior.
2- Teaching the student that success does not only come in controlling the principles of the profession in which he works, but he needs to know the principles of dealing with people.
3- Teaching the student that the profession needs legitimate methods to succeed, and these methods come only with ethics derived from higher human values.
4- Teaching the student that mastering the work entrusted to him is one of the qualities of a successful person in life, and this requires patience, and fraud and deception are the qualities of a failed person, and certainly such a person does not continue in his profession.

9. Course Outcomes and Teaching, Learning and Evaluation Methods

A-Knowledge Objectives

1-Providing the student with the origins of human values, and the good creator
2- Providethe student with live examples, notpeople from reality, whether in the job or from the private sector

B - Course Skills Objectives

1-Giving the student the results of the bad behavior and showing its consequences on reality and its damage
2-A statement of the legal rules that punish fraud and fraud
3- Introducing the student to the penalties of administrative corruption is a crime and bribery in the Iraqi Penal Code No. 111 of 1969

Teaching and Learning Methods

Theoretical lecture (with various means of explanation) google class room

Valuation Methods

1) The work of the year includes : (the daily exam at the beginning of the lecture and includes the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture, scientific reports, 2) the first semester exam, 3) the second semester exam, 4) the final exam.

10- Material Structure				
Week	Hours	Module / Course Name or Topic	Teaching Method	Evaluation method
Weekly	HOURS	Professional Ethics	Practical	STKs Examinations
1-6.	2 hours per week	The definition of ethics is language and terminology. Professional ethics. The Islamic concept of ethics. Definition of the profession in Islam. The concept of ethics . Characteristics of ethics in Islam. The reprehensible behaviors in Islam . Standards on which the profession is based. Objectives of professional ethics.	Theoretical	Daily and monthly exams
7-9	2 hours per week	General Rules for Succession. Sources of ethics. Legality of professional ethics. The benefits of an administrative work ethic. The importance of professional ethics. Characteristics of work ethics. Higher human values. The difference between work and profession.	Theoretical	Daily and monthly exams
10	2 hours per week	Qualities of professional ethics. Matters that are contrary to professional ethics. Matters that are contrary to professional ethics. Reasons for the spread of administrative corruption.	Theoretical	Daily and monthly exams
15	2 hours per week	Steps to an acceptable level of professional ethics. Rules governing job behavior. Means of building professional ethics. Ethical qualities of the employee. Teaching ethics. Behavioral deviations. Financial deviations. The offence of bribery. The difference between a gift and a bribe. Cheating at work. Ethics in Evaluation and Examination. Ethical values of scientific research.	Theoretical	Daily and monthly exams

11. Infrastructure	
Required textbooks	Lectures prepared according to the prescribed vocabulary
Key References (Sources)	Virtual Library of the Ministry of Higher Education and Scientific Research
Recommended books and references	The virtual library of the Ministry of Higher Education and Scientific Research - There are no books in the electronic library of the Institute

12: Course Development Plan
• Benefiting from the virtual library of the Ministry of Higher Education and Scientific Research. • Utilization of scientific websites in the development of the course through the presentation of scientific knowledge and developments in the field of the course. • Linking between the theoretical and practical part of the course through the material of the project.

Description of Management and Industrial Course (Level II)

Introducing the student to the science of management of engineering projects as well as factories, warehouse input system, warehouse output, sales systems, quarters, and others

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/Center	Mechanical Techniques /Production Department
3. Course Name / Code	Industrial Management/TIK 208
4-Available forms of attendance	Daily
5-semester/ year	-2024
6. Number of study hours (total)	30 semester hours (2 hours per week)
7.Date of preparation of this description	**December 02, 2024**

8.Objectives of the Article :
1- Special scientific methods and means in industrial management and its development.
2- Reaching the best possible settlement of products within the limits of time, cost and capital.
3- Identifying the administrative functions and the functions of industrial management.
4. Identify special scientific methods and methods of evaluating alternatives to choose the best alternative.

9. Course Outcomes and Teaching, Learning and Evaluation Methods

A-Knowledge Objectives

- The student shall be familiar with the most important principles of industrial management.
2-The student shall be familiar with how to plan and schedule projects and the basic principles of the feasibility study.
3-The student shall be familiar with the production methods with the lowest cost and the least time .
4-The student shall be familiar with how to financially plan aproject and predict cash flow.

B - Course Skills Objectives

1-The student shall be familiar with how to evaluate alternatives and make economic comparisons.
2-The student shall be aware of the importance of maintenance in industrial project machines to take advantage of the time life of the device for as long as possible.
3-The student shall be aware of the importance of training, its objectives and its role in the development of the industrial project.

Teaching and Learning Methods

The theoretical lecture using various means of explanation: such as data show , writing examples on the whiteboard , scientific reports.

Valuation Methods

1- Coursework includes : (daily exam at the beginning of the lecture and includes the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture , scientific reports. 2- Monthly exams.
3- Examination of the first and second semesters.

10- Material Structure				
Week	Hours	Module / Course Name or Topic	Teaching Method	Evaluation method
Weekly	HOURS	Industrial Management	Practical,	STKs Examinations
1	2 hours per week	Management : management and its development , stages and development of management , basic principles of management , characteristics of management , levels of management	Theoretical	Daily and monthly exams
2	2 hours per week	administrative functions, industrial management, its functions , industrial engineering, industrial management characteristics	Theoretical	Daily and monthly exams
3	2 hours per week	The ranking of the industrial unit, the location and ranking of the industrial unit, the main factors affecting the selection of industrial project sites, the ranking of the industrial unit (the initial ranking of the factory) , the classification of the types of industrial unit rankings, advantages, determinants and cases in which it is applied (commodity , functional , mixed ,joint ranking)	Theoretical	Daily and monthly exams
4	2 hours per week	Feasibility study for industrial projects: an idea of the feasibility study for industrial projects, the industrial project, the stages of the feasibility study, the importance of the feasibility study	Theoretical	Daily and monthly exams
5	2 hours per week	Production Planning: Production Planning Concept, Production Planning and Control Objectives	Theoretical	Daily and monthly exams
6	2 hours per week	Production planning: types of production , production planning methods, linear programming methods, graphical method and transfer method	Theoretical	Daily and monthly exams
7	2 hours	Discuss student progress reports with a quiz	Theoretical	Daily and

	per week			monthly exams
8	2 hours per week	Standard Work and Time Study: Work Study, Work Study Methods, Method Study, Time Study, Work Measurement	Theoretical	Daily and monthly exams
9	2 hours per week	Maintenance: The importance of maintenance , the concept of the technological system	Theoretical	Daily and monthly exams
10	2 hours per week	Maintenance : Types of maintenance , types of holidays	Theoretical	Daily and monthly exams
11	2 hours per week	Training : The concept of training , the importance of training , training methods.	Theoretical	Daily and monthly exams
12	2 hours per week	Industrial costs and wages : costs , classification of costs , wages	Theoretical	Daily and monthly exams
13	2 hours per week	Wage Calculation Methods, Incentives, Types of Incentives	Theoretical	Daily and monthly exams
14	2 hours per week	Procurement management: Procurement , procurement steps, inventory , types of materials stored and methods of controlling them	Theoretical	Daily and monthly exams
15	2 hours per week	Industrial safety: industrial safety, accident , types of accidents, methods of reducing accidents, protective equipment and types	Theoretical	Daily and monthly exams

11. Infrastructure	
Required textbooks	1.Principles of Construction Management by:Roy Pilcher 2.Modren Construction Management by :F.Harris
Key References (Sources)	1. Construction planning ,Equipment and Methods 2.CriticalPath Method in Construction Practice by:Antill 3. Engineering Economy by De Garms
Recommended books and references	- The virtual library of the Ministry of Higher Education and Scientific Research - There are no books in the electronic library of the Institute

12: Course Development Plan
The development plan is carried out through studies submitted through teaching to the Scientific Committee to be studied and added to the annual plan for the development of the subject .

Description of Machine Parts Course -1 (Level II)

The course teaches students how to apply engineering principles to create and design effective engineering solutions. Itfocuses on developing skills in designing products, systems, and structures using scientific principles and engineering techniques.

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/Center	Department of Mechanical Technologies
3. Course Name / Code	Machine Parts Technology 1 METP210
4-Available forms of attendance	Daily
5-semester/ year	-2024
6. Number of study hours (total)	60 hours per year (2 hours per week)
7.Date of preparation of this description	**December 02, 2024**

8.Objectives of the Article: 1- 1 Statement of the importance of studying engine parts 2- Deriving mathematical formulas that govern the movement of engine parts 3-Developing the ability and ability of the student to translate academic information into practical reality

9- Course outputs and teaching, learning and evaluation methods
1-Studying the basic concepts in engines 2- Identify the advantages of engine parts 3-Learn about the laws of motor movement control
Teaching and Learning Methods
Theoretical lecture (with various means of explanation) google class room, practical lecture (with various means of explanation) , scientific reports Google meet.Youtube section.
Valuation Methods
11) The work of the year includes: (the daily exam at the beginning of the meeting, including the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture, scientific reports, 2) the first semester exam, 3) the second semester exam, 4) the final exam.

10-Material Pain Structure				
Week	houers	Module / Course Name or Topic	Teaching Method	Evaluation method
Weekly	hours	Machine Parts -1	Practical,	STKs Examinations
1	2	Identifying the Stress and Stress Diagram	Theoretical	T-tests + scientific reports
2	**2**	Identify the types of materials and the amount of stresses they endure	Theoretical	T-tests + scientific reports
3	**2**	Learn about the laws on the subject	Theoretical	T-tests + scientific reports
4	**2**	Solving mathematical examples	Theoretical	T-tests + scientific reports
5	**2**	Identify the types of fasteners	Theoretical	T-tests + scientific reports
6	**2**	Bolting	Theoretical	T-tests + scientific reports
7	**2**	Solving mathematical examples on the subject	Theoretical	T-tests + scientific reports
8	**2**	Key linkage	Theoretical	T-tests + scientific reports
9	**2**	Solving mathematical examples on the subject	Theoretical	T-tests + scientific reports
10	**2**	Riveting	Theoretical	T-tests + scientific reports
11	**2**	Solving mathematical examples on the subject	Theoretical	T-tests + scientific reports
12	**2**	Splicing with welding	Theoretical	T-tests + scientific reports
13	**2**	Solving mathematical examples on the subject	Theoretical	T-tests + scientific reports
14	**2**	Identifying the springs.	Theoretical	T-tests + scientific reports
15	**2**	Solving mathematical examples on the subject	Theoretical	T-tests + scientific reports

11. Infrastructure	
Required textbooks	Machine parts V. Dobrovolsky Zablonski and fishmonger
Key References (Sources)	Mechanical Engineering Design" by J.E. Shigley
Recommended books and references	Virtual Library of the Ministry of Higher Education and Scientific Research

12: Course Development Plan
The development plan is carried out through studies submitted through teaching to the Scientific Committee to be studied and added to the annual plan for the development of the subject .

Description of Machine Parts Course -2 (Level 2)

Thecourse teaches students how to apply engineering principles to create and design effective engineering solutions. Itfocuses on developing skills in designing products, systems, and structures using scientific principles and engineering techniques.

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/Center	Department of Mechanical Technologies
3. Course Name / Code	Machine Parts Technology 2 METP211
4-Available forms of attendance	Daily
5-semester/ year	-2024
6. Number of study hours (total)	60 hours per year (2 hours per week)
7.Date of preparation of this description	**December 02, 2024**

8.Objectives of the Article : 1- Statement of the importance of studying engine parts 2-Deriving mathematical formulas that govern the movement of engine parts 3-Developing the ability and ability of the student to translate academic information into practical reality

9- Course outputs and teaching, learning and evaluation methods
1-Studying the basic concepts in engines 2- Identify the advantages of engine parts 3-Learn about the laws of motor movement control
Teaching and Learning Methods
Theoretical lecture (with various means of explanation) google class room, practical lecture (with various means of explanation) , scientific reports Google meet.Youtube section.
Valuation Methods
11) The work of the year includes: (the daily exam at the beginning of the meeting, including the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture, scientific reports, 2) the first semester exam, 3) the second semester exam, 4) the final exam.

10-Material Pain Structure				
Week	hours	Module / Course Name or Topic	Teaching Method	Evaluation method
Weekly	hours	Machine Parts -2	Practical,	STKs Examinations
1	**2**	To know about mechanical transmission systems	Theoretical	T-tests + scientific reports
2	**2**	Learn about the axis and its equations	Theoretical	T-tests + scientific reports
3	**2**	Solve mathematical examples about axes	Theoretical	T-tests + scientific reports
4	**2**	Learn about the mechanical shaft	Theoretical	T-tests + scientific reports
5	**2**	The effect of the sliding ratio on the shaft equations	Theoretical	T-tests + scientific reports
6	**2**	Solve mathematical examples about the shaft	Theoretical	T-tests + scientific reports
7	**2**	Learn about the handle (clutch)	Theoretical	T-tests + scientific reports
8	**2**	Show an educational clip about how the handle works	Theoretical	T-tests + scientific reports
9	**2**	Solve mathematical examples about handles	Theoretical	T-tests + scientific reports
10	**2**	Learn about bearings and types of bearings	Theoretical	T-tests + scientific reports
11	**2**	Solve mathematical examples about bearings	Theoretical	T-tests + scientific reports
12	**2**	Learn about the gear and its types	Theoretical	T-tests + scientific reports
13	**2**	Solve mathematical examples about the gear	Theoretical	T-tests + scientific reports
14	**2**	Learn about the gearbox	Theoretical	T-tests + scientific reports
15	**2**	Solve mathematical examples about the gearbox	Theoretical	T-tests + scientific reports

11. Infrastructure	
Required textbooks	Machine parts V. Dobrovolsky Zablonski and fishmonger
Key References (Sources)	Mechanical Engineering Design" by J.E. Shigley
Recommended books and references	Virtual Library of the Ministry of Higher Education and Scientific Research

12: Course Development Plan
The development plan is carried out through studies submitted through teaching to the Scientific Committee to be studied and added to the annual plan for the development of the subject .

Description of Manufacturing Process Course -3 (Level 2)

After the end of teaching this subject, the learner will be able to: Identify the turning machine and its types and parts and acquire the skill to deal with machines and devices.

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/Center	Department of Mechanical Technologies
3. Course Name / Code	Manufacturing processes 3 METP212
4-Available forms of attendance	Daily
5-semester/ year	2024-2025
6. Number of study hours (total)	60 hours for the first semester (4 hours per week)
7.Date of preparation of this description	1 December 2024

8.Objectives of the Article:
1-A graduate of an intermediate cadre capable of working in the fields of manufacturing and production to contribute
2-Ability to analyze manufacturing processes into operating elements.
3- Numbers of the technological path between production units.
4-Preparing operating cards and orders for each unit and each machine and calculating the operating time and loading programs for the units.
5-Determining the elements of control and quality control.
6. Preliminary calculations of operating costs

9- Course outputs and teaching, learning and evaluation methods

1 Knowledge Objectives

1- Identifying the production and manufacturing processes of metals and their types.
2- Identifying the formation of metals and the theory of formation.
3-Identifying the methods of metal manufacturing.

Teaching and Learning Methods

Theoretical lecture (with various means of explanation) Google class room,data show, practical lecture (with various means of explanation) , scientific reports. Google meet.Youtube section.

Valuation Methods

1) The work of the year includes: (the daily exam at the beginning of the meeting, including the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture, scientific reports
2) the first semester exam
3) the second semester exam
4) the final exam.

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10-Material Pain Structure				
Week	hours	Unit Name/Course Name	Teaching Method	Evaluation method
Weekly	2	Manufacturing Operations -3	Practical,	STKs Examinations
1	2	Engineering tolerances, duplications, duplication systems, arrangement of tolerances , duplication units, and basic deviations.	Theoretical	Exams + scientific reports
2	2	Types of tolerances , hole foundation system, shaft foundation system, duplication codes, tolerances for free dimensions, detailed duplications, selection of duplications and their economic advantages.	Theoretical	Exams + scientific reports
3	2	Geometric tolerances in shape, position, and types of shape and position tolerances.	Theoretical	Exams + scientific reports
4	2	gauges , gauges design, gauges types) gauges internal gauges, gauges external gauges, gauges adjustable , gauges solid gauges gauges their	Theoretical	Exams + scientific reports
5	2	Classification of metalworking , metalworking , introduction to the theory of feather formation and influencing factors, methods of fixing works, including round and non-round, cutting borders used, and longitudinal and transverse feeding	Theoretical	Exams + scientific reports
6	2	Operations that can be performed on the caudal lathe.	Theoretical	Exams + scientific reports
7	2	Identify the pens used and how to install them for the machined pens.	Theoretical	
8	2	Identify the types of turning angles, the impact of turning pen angles on the cutting process, the types of metal of turning pens, the cutting conditions, cutting elements, the uses of cutting speeds, the use of tables and speed maps, the classification of cutting tools in relation to operating methods and the number of cutting limits.	Theoretical	Exams + scientific reports

9	2	Methods of production of robberies	Theoretical	Exams + scientific reports
10	2	The cut-off limit, the emerging cut-off limit and the theory of its formation , the factors that affect it , the factors that lead to reducing its size , cooling and its importance for cutting operations, various refrigerants	Theoretical	Exams + scientific reports
11	2	How the group operation card performs operations, calculates its elements, and calculates the cut-off time for each operation	Theoretical	Exams + scientific reports
12	2	Factors Affecting Speed Selection Cutting (the effect of the properties of several pieces , the effect of the operating elements, the effect of the properties of the operating metal)	Theoretical	Exams + scientific reports
13	2	Automatic turret turning machines, studying the processes that can be operated and analyzing the processes on the product	Theoretical	Exams + scientific reports
14	2	Operation Card	Theoretical	Exams + scientific reports
15	2	Studying how to program automatic programmed lathes and the factors affecting operation steps	Theoretical	Exams + scientific reports

11. Infrastructure	
Required textbooks	1. Introduction to Production Engineering 2.Production Engineering Technology and Removal Design
Key References (Sources)	Metal Process Books Metal Forming Process Books Scientific reports on websites
Recommended books and references	Virtual Library of the Ministry of Higher Education and Scientific Research

12: Course Development Plan
The development plan is carried out through studies submitted through teaching to the Scientific Committee to be studied and added to the annual plan for the development of the subject .

Description of Manufacturing Processes Course - 4 (Level 2)

After the end of teaching this subject, the learner will be able to: Identify the turning machine and its types and parts and acquire the skill to deal with machines and devices.

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/Center	Department of Mechanical Technologies
3. Course Name / Code	Manufacturing Operations -4METP213
4-Available forms of attendance	Daily
5-semester/ year	2024-2025
6. Number of study hours (total)	4 hours per week
7.Date of preparation of this description	1 December 2024

8.Objectives of the Article: 1-A graduate of an intermediate cadre capable of working in the fields of manufacturing and production to contribute 2-Ability to analyze manufacturing processes into operating elements. 3-Preparing the technological path between production units. 4-Preparing operating cards and orders for each unit and each machine and calculating the operating time and loading programs for the units. 5-Determining the elements of control and quality control. 6. Preliminary calculations of operating costs

9- Course outputs and teaching, learning and evaluation methods
1- Identifying the production and manufacturing processes of metals and their types. 2-Identifying the formation of metals and the theory of formation. 3-Identifying the methods of metal manufacturing.
Teaching and Learning Methods
Theoretical lecture (with various means of explanation) Google class room,data show, practical lecture (with various means of explanation) , scientific reports. Google meet.Youtube section.
Valuation Methods
11) The work of the year includes: (the daily exam at the beginning of the meeting, including the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture, scientific reports, 2) the first semester exam, 3) the second semester exam, 4) the final exam.

10-Material Pain Structure				
Week	hours	Module / Course Name or Topic	Teaching Method	Evaluation method
Weekly	2	Manufacturing Operations -4	Practical,	STKs Examinations
1	**2**	Milling , identifying the processes that can be carried out on milling machines, parts and components of horizontal and vertical milling machines and the nature of the work of each part	Theoretical	T-tests + scientific reports
2	**2**	Machine accessories, partition heads, tools for connecting workpieces, mandrels and bush.	Theoretical	T-tests + scientific reports
3	**2**	Types of milling knives (disc and finger) and gear-lightening knives.	Theoretical	T-tests + scientific reports
4	**2**	Geometry of the corners of the milling knives, cutting methods in the freezer.	Theoretical	T-tests + scientific reports
5	**2**	Explaining the steps of milling operations, Choosing the appropriate machine, the initial dimensions of the artifacts , methods of connecting the artifacts.	Theoretical	T-tests + scientific reports
6	**2**	Milling of different gear types Gears (Neutral, Conical , Helical , Worm)	Theoretical	T-tests + scientific reports
7	**2**	The way the dovetail mesh works, the V block mesh.	Theoretical	T-tests + scientific reports
8	**2**	Operating rates, cutting and feeding speeds and the basis of their selection of different milling processes	Theoretical	T-tests + scientific reports
9	**2**	Skimming : Definition of the types of skimmers (cart ,skimmer, vertical), operations carried out on the skimming machine, the available operating capabilities of each machine ,methods of connecting the works	Theoretical	T-tests + scientific reports
10	**2**	Operating rates of cutting and feeding speeds of planer accessories such as splitting heads or special devices, corners of	Theoretical	T-tests + scientific reports

		skimming pens, and the types of forces affecting them		
11	**2**	The skimmer, clarifying (cutting stroke, return stroke) , linkage methods on the skimmer machine and operating rates, calculating the cutting time for skimming , preparing the sequence card by skimming.	Theoretical	T-tests + scientific reports
12	**2**	Grinding : An introduction to the theory of cutting and the shape of the feathers in the grinding process, the grinding stones used (peripheral , facial , lateral , cup, external, internal), their specifications and uses , and the methods of connection.	Theoretical	T-tests + scientific reports
13	**2**	Different grinding machines and operation capabilities for each type of external and internal cylindrical grinding machines, tool tooth machines).	Theoretical	T-tests + scientific reports
14	**2**	Grinding procedures.	Theoretical	T-tests + scientific reports
15	**2**	Grinding Trouble.	Theoretical	T-tests + scientific reports

11. Infrastructure	
Required textbooks	1. Introduction to Production Engineering 2.Production Engineering Technology and Removal Design
Key References (Sources)	Metal Process Books Metal Forming Process Books Scientific reports on websites
Recommended books and references (scientific journals, reports,....)	Virtual Library of the Ministry of Higher Education and Scientific Research

12: Course Development Plan
The development plan is carried out through studies submitted through teaching to the Scientific Committee to be studied and added to the annual plan for the development of the subject

Description of the course of Workshopes- 3(Mechanical) (Level 1)

After the end of teaching this subject, the learner will be able to:
Identifying the various methods and installing the parts of the stalls in the workshops and working on them, casting metals and their importance, identifying the turning machine, its types and parts, and acquiring the skill to deal with machines and devices .

Educational Institution	Northern Technical University/Kirkuk Technical Institute
Scientific Department/ Center	Department of Mechanical Technologies
Course Name /Code	Workshopes -3(Mechanical) METP214
Available Attendance Forms	Attendance at workshops
Term / Year	2024-2025
Number of study hours (total)	180hours for the second semester (6 hours per week)
Date this description was prepared	1 December 2024

8.Objectives of the Article :
Introduce the student to:
Providing and qualifying the student with basic information in the subject of engineering workshops
Familiarity with the operation and knowledge of machine parts and workshops(welding , plumbing, blacksmithing, turning)
Conducting practical exercises and how to use the tool

9. Course Outcomes and Teaching, Learning and Evaluation Methods

Knowledge Objectives

1. dentifying the various methods and installing the parts of the machines in the workshops
2. Know how to deal with the number and machines and their parts in addition to how to make measurements
3. Ability to optimally test the appropriate method of work from among the above methods.

Teaching and Learning Methods

Practical lecture (with various means of explanation) , working on the operation of the machines and applying the exercises to them.

Valuation Methods

1) Course work, including : daily practical exercises, reports .

Affective and Valuable Objectives

1. Analysis, reasoning and comparison
2. Observation accuracy and depth of thought
3. Speed of information retrieval and intuition of conclusion
4. Speed and accuracy of decision making
5. Improving Digital Values

10- Material Structure					
Week	Hours	Intended Learning Outcomes	Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	6	Workshopes -3	Department of Mechanical Technologies	Practical,	Practical exams

Week	hours	Module Name/ or Topic Workshopes -3	Teaching Method	Method of Evaluation
1	2	Milling: 1- Horizontal milling machine, the main collector, explaining the parts of the machine and the function of each of them , operating the machines and choosing the speeds and feeds ,tools and devices attached to the machines and their uses and methods of installation, machine partition heads, Chinese rotary machines, universal milling heads, rack work head, sewage work head 2- Milling balls: their types (cylindrical surface milling, shoulder milling, sewage work balls, gear lightening balls, special cylindrical forming balls with internal or peripheral hole 3- Milling of flat surfaces: selecting and installing the appropriate electronics,adjusting the cutting and feeding speeds, how to install the workpiece, sequencing the operations ,parts of the milling operations to straighten flat and oblique surfaces and make a set of different sewers	Practical,	Practical exams
2	2	Partition heads and their uses : 1-The division device and its method of use , simple division,division using holes circles, differential division, angular division, exercises on different types of division (division of angular division parts) 2- Milling straight gears on public machines, notarized newspapers and laws for cutting the used gears, preparing services , preparing the processing and operation of the parts of the milling operations, reviewing the final dimensions,training the milling bug for the notarized arc and notarized newspaper	Practical,	Practical exams
3	2	1- Bevel gear milling on general machines (the same as the wheel gear milling platform)	Practical,	Practical exams

		2- Milling spiral gears and tilted sprockets on public machines (the same as the wheel milling platform)		
4	2	1- Millingthe work by dividing the angles 2- Milling of internal sewers 3- Milling the curves , explaining the general laws of each process , the steps of implementing them , preparing the raw materials,choosing the blocks , choosing the operating rates,conducting the milling operations, reviewing the dimensions of the works	Practical,	Practical exams
5	2	Maintenance of the milling machine: 1-Dismantling and installation of mandrel shaft 2-Opening, maintenance and installation of the machine table 3- Open the main cutting speed box and learn how to change and re-install the speed 4- Open the feed speed box and learn how to change and re-install it 5- Conducting speed change operations through pulley belts and identifying how they are transformed and the process of tightening them 6- Identifying the electrical control circuits for the operation of the milling machine	Practical,	Practical exams
6	2	Grinding 1-Buckling machines (internal and external cylindrical, eccentric grinding, surface grinding, number tooth) 2- Grinding stones: their shapes , types, specifications , use of each of them , preparing grinding stones for operation (adjusting the balance , leveling the stones) 3- Surface grinding machines: explaining the parts of the machine and the function of each of them , the method of operation and adjusting the trip , the speed of feeding and grafting , methods of fixing the workpiece, the use of coolant and its types. 4- Training on grinding surfaces :flat, parallel, perpendicular and oblique. 5- Sewer Grinding:Training on grinding different sewers and round sewers	Practical,	Practical exams
7	2	1- Cylindrical grinding: Machine parts, method of operation, adjusting operating speeds and rates , testing the suitable stone for the work, fixing the workpiece, using coolant and measuring tools 2- Exercises on external and internal cylindrical grinding operations	Practical,	Practical exams

8	2	1. Decentralized grinding and crank grinding 2- Various grinding operations using previous grinding operations and training on them	Practical,	Practical exams
9	2	Number Age Machine: 1- Operating the tool age machine, how to deal with it, and choosing the appropriate machine for the age of the rhombus tool. 2- How to install the cutting tool on the machine and determine the angles required for the cutting limit 3- Conducting tooth operations for models of the number of pieces (single-shaft cutter, double-shaft cutter and polynomial cutter.	Practical,	Practical exams
10	2	Maintenance of grinding machines (internal and external general cylinder grinding machine) 1- How to switch cooling liquids and determine the required level 2- Determining the places of lubrication and lubrication of the machine and the type of oil and grease 3- Carrying out the replacement of the rotational speed conveyors of the occupied stone	Practical,	Practical exams
11	2	1- Planers and anchors: The difference between the use of each of them , the machine procedure and the method of work , the works and surfaces that can be operated on each of them, the pens used , the methods of installing them, the speeds of cutting and feeding, the vaccination rates and the selection of each of them 2- Exercises to scrape the neutral and oblique surfaces at different angles. 3- Exercises to make internal and external sewers of different shapes .	Practical,	Practical exams
12	2	Surface scraping exercises and machineries complete with machine parts. V Block and Drill Bases	Practical,	Practical exams
13	2	Exercises on scraping arches , making sewers on circular crafts using splitting devices on scrapers	Practical,	Practical exams
14	2	Various skimming exercises	Practical,	Practical exams
15	2	Maintenance of the skimming machine: 1-Maintenance of the trolley skimmer 2-Opening the crocodile and maintenance parts of the control parts along the length of the stroke as well as changing the location of the stroke 3- Conducting oiling and lubrication operations and opening the oil pump	Practical,	Practical exams

11.SUBSTRUCTURE	
Required textbooks	Foundation Workshops/General Organization for Technical Education and Vocational Training/ Kingdom of Saudi Arabia
Key References (Sources)	Production Operations Principles/Dr. Qahtan Khalaf Al-Khazraji
Recommended books and references (scientific journals, reports,....)	Virtual Library of the Ministry of Higher Education and Scientific Research

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

Description of Workshopes **-4 Course (Mechanical) (Level 1)**

After the end of teaching this subject, the learner will be able to: Identifying the various methods and installing the parts of the stalls in the workshops and working on them, casting metals and their importance, identifying the turning machine, its types and parts, and acquiring the skill to deal with machines and devices .

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies
3. Course Name / Code	Workshopes -4(Mechanical) METP215
4-Available forms of attendance	Attendance at workshops
5-semester/ year	2024-2025
6. Number of study hours (total)	90hours for the second semester (6 hours per week)
7.Date of preparation of this description	1/12/2024

8.Objectives of the Article : Introduce the student to: 1.Providing and qualifying the student with basic information in the subject of engineering workshops 2.Familiarity with the operation and knowledge of machine parts and workshops(welding , plumbing, blacksmithing, turning) 3.Conducting practical exercises and how to use the tool

9. Course Outcomes and Teaching, Learning and Evaluation Methods
Knowledge Objectives 1-Identifying the various methods and installing the parts ofthe machines in the workshops 2-Know how to deal with the number and machines and their parts in addition to how to make measurements 3-Ability to optimally test the appropriate method of work from among the above methods.
Teaching and Learning Methods
Practical lecture (with various means of explanation) , working on the operation of the machines and applying the exercises to them.
Valuation Methods
1) Course work, including : daily practical exercises, reports .
Affective and Valuable Objectives
1. Analysis, reasoning and comparison 2. Observation accuracy and depth of thought 3. Speed of information retrieval and intuition of conclusion 4. Speed and accuracy of decision making 5. Improving Digital Values

10- Material Structure				
Week	hours	Intended Learning Outcomes Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	6	Workshopes -4 Department of Mechanical Technologies	Practical,	Practical exams
1	6	Turning: 1- Decentralized turning and turning using the quadruple sample, and methods of fixing special works 2- Exercises on No Miscellaneous Decentralized Works	Practical,	Practical exams
2	6	1-Turning of external and internal rotations and turning of forming 2- Exercises for various turning operations with the use of forming pens	Practical,	Practical exams
3	6	Turret lathes: 1-An overview of the turret lathes and the use of speed schedules and feeding 2-Following up the operations of the various products and preparing the sequence of their operations	Practical,	Practical exams
4	6	1- Pens, the number used, the method of adjusting them, and the preparation for making various crafts 2- How to prepare maps of the sequence of operations	Practical,	Practical exams
5	6	Lathe Maintenance: 1- Conducting dismantling and maintenance of triple and quadruple samples 2- Dismantling the moving crow and carrying out maintenance 3-Dismantling the small and large plotters and carrying out maintenance 4- Maintaining the main cutting speed box and calculating the feeding speed	Practical,	Practical exams
6	6	G-CodeProgrammed Machines 1- A brief history of CNC machines, the differences between CNC machines and ordinary machines, the stages of work on programmed machines 2-Definition of machine parts, movement axes, control panel, definition and operation of the	Practical,	Practical exams

		machine in practice		
7	6	1-The program , the structure of the program , how to program the milling machines, the functions used in the programmed machines, the zero point of the machine , the functions for the movement levels. (G17,G18,G19) Motion Coordinate Functions (G90,G91) 2- Simulation using simulation programming,how to use the program , program prompts 3-The control panel of the CNC machine according to the ISO9001 system, the implementation of movements through the manual control device, the zeroing of the machine , the zeroing of the representative machine, the zeroing of the workpiece , the methods of fixing the workpiece	Practical,	Practical exams
8	6	1- Linear Motion Functions (G1, G2) Zero Segment Point Storage Functions, (Reference Points) (G51,G52,G53,G54,G55,G56,G57,G58,G59) , Auxiliary Functions F,M,S,T 2- Implementing a facial milling program using the above instructions and applying it to the calculator , using simulation programs and practically implementing it on the machine 3- Rotational motion functions G2 and G3 Repetition function, image formation function identically but in the opposite direction (Mirror)	Practical,	Practical exams
9	6	1- Make a program to implement a circular cut (quarter circle ,semicircle , full circle) and apply it to the calculator using simulation programs and implement it practically on the machine 2- Radius compensation functions (calibration functions) G40, G41,G42,G43,G44	Practical,	Practical exams
10	6	1- Fixed functions Single stage punching function, Phased punching function, Teeth operation function, Hole expansion function, Milling ring function, Longitudinal slit operation function, Circular drilling operation function 2- Implementing a program using the previous	Practical,	Practical exams

		functions and applying it to the calculator using simulation programs and implementing it on the machine 3- Maintenance of the machine and how to replace the cutting tools , checking the lubrication system in the machine , lubricating the spindle, checking the cooling system and changing the coolant		
11	6	CAD-CAM Programmed Machinery Workshop 1-Introducing students to the programmed machines, their accessories and the attached programs 2- Identifying the parts of the programmed turning machines, the switches of the control panel and the function of each of them , the number of parts , the axes of the machine 3- Using CAD-CAM software to design an engineering product and implement the computer bug product in a simulation manner	Practical,	Practical exams
12	6	Identifying the replacement of the damaged number or the definition of a new tool, implementing an integrated product on the machine starting from the design stage on theCAD-CAM program through the simulation process and ending with the implementation of the product on the machine.	Practical,	Practical exams
13	6	1- Identifying the parts of the programmed milling machine: the switches of the control panel and the function of each of them , the number of pieces , the axes of the machine . 2- Using CAD-CAM software to design an engineering product and implement the product on the calculator in a simulation way (Simulation)	Practical,	Practical exams
14	6	1- Learn how to replace the damaged number or identify the new one 2- Implementing an integrated product on the machine starting from the design stage on theCAD-CAM program through the simulation process and ending with the implementation of the product on the machine.	Practical,	Practical exams
15	6	Carrying out many exercises on turning and milling machines	Practical,	Practical exams

11.SUBSTRUCTURE	
Required textbooks	Foundation Workshops/General Organization for Technical Education and Vocational Training/ Kingdom of Saudi Arabia
Key References (Sources)	Production Operations Principles/Dr. Qahtan Khalaf Al-Khazraji
Recommended books and references (scientific journals, reports,....)	Virtual Library of the Ministry of Higher Education and Scientific Research

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

Metallurgy-1 Course Description - 1 (Level 2)

After the end of teaching this subject, the learner will be able to: Identifying the various methods and installing the parts of the stalls in the workshops and working on them, metal plumbing and its importance, identifying the turning machine, its types and parts, and acquiring the skill to deal with machines and devices .

1.Educational Institution	Northern Technical University/Kirkuk Technical Institute
2.Scientific Department/ Center	Department of Mechanical Technologies
3.Course Name /Code	Metallurgy-1 -1METP216
4.Available Attendance Forms	In presence
5.Term / Year	2024-2025
6.Number of study hours (total)	60 hours for the second semester (4 hours per week)
7.Date this description was prepared	1 December 2024

8.Objectives of the Article : Introduce the student to: 1.Providing and qualifying the student with basic information in the subject of engineering workshops 2.Familiarity with the operation and knowledge of machine parts and workshops(welding , plumbing, blacksmithing, turning) 3.Conducting practical exercises and how to use the tool

9. Course Outcomes and Teaching, Learning and Evaluation Methods
Knowledge Objectives 1. Identifying the various methods and installing the parts ofthe machines in the workshops 2. Know how to deal with the number and machines and their parts in addition to how to make measurements 3. Ability to optimally test the appropriate method of work from among the above methods.
Teaching and Learning Methods
Practical lecture (with various means of explanation) , working on the operation of the machines and applying the exercises to them.
Valuation Methods
1) Course work, including : daily practical exercises, reports .
Affective and Valuable Objectives
1- Analysis, reasoning and comparison 2- Observation accuracy and depth of thought 3- Speed of information retrieval and intuition of conclusion 4- Speed and accuracy of decision making 5- Improving Digital Values

10- Material Structure				
Week	Hours	Intended Learning Outcomes Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	2	**Metallurgy-1** Department of Mechanical Technologies	Practical	Practical exams
1	2 hours	Definition of mineralogy , crystallization, dendritic crystallization , the effect of the cooling rate on the structure of minerals	Practical	Practical exams
2	2 hours	Installation of metal blocks (freezing of castings) and common defects in castings	Practical	Practical exams
3	2 hours	Atomic Overcrowding Coefficient , Crystalline Trends and Crystalline Levels, Articulation Phenomenon	Practical	Practical exams
4	2 hours	Defects of the crystal mesh, raster , linear	Practical	Practical exams
5	2 hours	Flexible forming, plastic forming, (sliding and twinning)	Practical	Practical exams
6	2 hours	Emotional hardening, cold forming and hot forming	Practical	Practical exams
7	2 hours	Restoration , recrystallization , crystalline growth	Practical	Practical exams
8	2 hours	Stress curves, strain in bending , tide , fracture , fracture types, transformation from ductile fracture to brittle fracture	Practical	Practical exams
9	2 hours	fatigue , fatigue mechanism, fatigue-limiting factors, fatigue-resistant materials	Practical	Practical exams
10	2 hours	Crawl , crawl mechanism, crawl-resistant materials	Practical	Practical exams
11	2 hours	Composite , phase , solid solution, system , equilibrium , alloying , mechanical mixture, eutectic	Practical	Practical exams
12	2 hours	Thermal equilibrium diagram for a complete liquid-solid dissolving binary system and Thermal equilibrium diagram for a complete liquid-soluble and solid-soluble binary system (IoT)	Practical	Practical exams
13	2 hours	Thermal equilibrium diagram of a fully liquid dissolved and limited solid dissolved binary system	Practical	Practical exams
14	2 hours	Thermal equilibrium diagram of a fully liquid dissolved binary system that is a chemical compound upon freezing	Practical	Practical exams

15	2 hours	Iron , carbon solubility in iron , thermal equilibrium diagram of the iron-carbon system and the most important reactions included in the diagram	Practical	Practical exams

SUBSTRUCTURE	
Required textbooks	Foundation Workshops/General Organization for Technical Education and Vocational Training/ Kingdom of Saudi Arabia
Key References (Sources)	Production Operations Principles/Dr. Qahtan Khalaf Al-Khazraji
Recommended books and references (scientific journals, reports,....)	Virtual Library of the Ministry of Higher Education and Scientific Research

- Course development plan: The development plan is carried out through studies submitted through the annual scientific plan for the development of the course.

Metallurgy 2 Course Description - 2 (Level 2)

After the end of teaching this subject, the learner will be able to:
Identifying the various methods and installing the parts of the stalls in the workshops and working on them, metal plumbing and its importance, identifying the turning machine, its types and parts, and acquiring the skill to deal with machines and devices .

1. Educational institution	Northern Technical University/Kirkuk Technical Institute
2- Scientific Department/ Center	Department of Mechanical Technologies
3. Course Name / Code	Metallurgy 2 METP217
4-Available forms of attendance	Attendance
5-semester/ year	2024-2025
6. Number of study hours (total)	60 hours for the second semester (4 hours per week)
7.Date of preparation of this description	1/12/2024

8.Objectives of the Article :
Introduce the student to:
1.Providing and qualifying the student with basic information in the subject of engineering workshops
2.Familiarity with the operation and knowledge of machine parts and workshops(welding , plumbing, blacksmithing, turning)
3.Conducting practical exercises and how to use the tool

9. Course Outcomes and Teaching, Learning and Evaluation Methods

Knowledge Objectives

1. Identifying the various methods and installing the parts ofthe machines in the workshops
2. Know how to deal with the number and machines and their parts in addition to how to make measurements
3. Ability to optimally test the appropriate method of work from among the above methods.

Teaching and Learning Methods

Practical lecture (with various means of explanation) , working on the operation of the machines and applying the exercises to them.

Valuation Methods

1) Course work, including : daily practical exercises, reports .

Affective and Valuable Objectives

1. Analysis, reasoning and comparison
2. Observation accuracy and depth of thought
3. Speed of information retrieval and intuition of conclusion
4. Speed and accuracy of decision making
5. Improving Digital Values

10- Material Structure				
Week	Hours	Intended Learning Outcomes Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	2	Metallurgy 2 Department of Mechanical Technologies	Practical,	Practical exams
1	2 hours	Thermal equilibrium diagram supplement for iron-carbon system	Practical,	Practical exams
2	2 hours	The formation of austenite, the mechanism of transformation from austenite to perlite	Practical,	Practical exams
3	2 hours	Austenite transformations with constant temperature and continuous cooling transformations	Practical,	Practical exams
4	2 hours	Thermal coefficients (annealing , neutralizing , tempering)	Practical,	Practical exams
5	2 hours	Heat coefficients (tempering and revision) Subzero heat coefficients, aging	Practical,	Practical exams
6	2 hours	Surface hardening (carbonization of all kinds, subsequent heat treatments and nitriding)	Practical,	Practical exams
7	2 hours	Alloy steel and the effect of casting elements on steel properties	Practical,	Practical exams
8	2 hours	Rust-proof steel and number steel	Practical,	Practical exams
9	2 hours	Cast iron production and heat treatment	Practical,	Practical exams
10	2 hours	Complementing the production of cast iron and its types	Practical,	Practical exams
11	2 hours	Definition of erosion , direct and indirect economic costs of erosion , manifestations of erosion , mechanism of erosion	Practical,	Practical exams
12	2 hours	Negativity , Faraday 's law, general erosion, galvanic erosion, cavernous erosion	Practical,	Practical exams
13	2 hours	Taka associated with soil , voluntary erosion, intercrystalline erosion, stress erosion	Practical,	Practical exams
14+15	2 hours	Optimal testing of the material , perimeter tempering, design and operation , methods of corrosion prevention	Practical,	Practical exams

SUBSTRUCTURE	
Required textbooks	Foundation Workshops/General Organization for Technical Education and Vocational Training/ Kingdom of Saudi Arabia
Key References (Sources)	Production Operations Principles/Dr. Qahtan Khalaf Al-Khazraji
Recommended books and references (scientific journals, reports,....)	Virtual Library of the Ministry of Higher Education and Scientific Research

- Course development plan: The development plan is carried out through studies submitted through the annual scientific plan for the development of the course.

Description of Industrial Drawing Course - 1 (Level 2)

Computer engineering drawing is one of the most important means of technological progress and communication in the world. Therefore, teaching engineering drawing using computers is an essential part of the curricula of engineering students and technical institutes in various disciplines.
Due to the urgent need for a tool to help those interested in computer-aided geometric drawing, AutoCAD software was chosen. With its ease of use and speed of implementation, it is one of the world's most popular computer-aided design (CAD) systems.Therefore, this module is designed to enable students to acquire the skill to deal with AutoCAD effectively and efficiently

1.Educational Institution	Northern Technical University/Kirkuk Technical Institute
2.Scientific Department/ Center	Department of Mechanical Technologies
3.Course Name /Code	Industrial drawing -1METP218A
4.Available Attendance Forms	Attendance
5.Term / Year	2024-2025
6.Number of study hours (total)	45 hours for the second semester (3 hours per week)
7.Date this description was prepared	1-12-2025

8.Objectives of the Article :
Introduce the student to:
•Introduce the student to how to use different drawing tools in AutoCAD.
•Teaching the student to draw mechanical parts
•Teaching the student how to use the rules and set the required dimensions
•Teaching the student the projections, the pieces of the assembled parts and the methods of scraping
•The student will learn to conform to international engineering standards in reading the mechanical part and sorting it for designs

9. Course Outcomes and Teaching, Learning and Evaluation Methods

Knowledge Objectives

- Learn about industrial drawing and its methods of work
- AutoCAD mechanical part drawing
- AutoCAD mechanical penalty assembly
- Benefiting from the industrial drawing in projects

Teaching and Learning Methods

Practical lecture (with various means of explanation) , working on the operation of the machines and applying the exercises to them.

Valuation Methods

- The work of the year includes : (daily exam at the beginning of the lecture and includes the topic of the previous lecture, oral exams during the lecture with the

same topic of the lecture , homework.

- First Semester Examination
- Chapter 2
- Final exam with its courses

Affective and Valuable Objectives

1- Enhance appreciation of artistic beauty and precision in geometric drawing.
2- Encourage creativity and innovation in graphic design.
3- Promote teamwork and collaboration among students.

10- Material Structure

Week	Hours	Intended Learning Outcomes Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	3	Industrial Drawing-1 Department of Mechanical Technologies	Practical	Practical exams
1	3 hours	General Review of First Grade Topics, Geometric Lines, Projections,Sections , Dimensioning with AutoCAD	Practical	Practical exams
2	3 hours	Spiral bonding methods, spiral types, nut types,with plate drawing	Practical	Practical exams
3	3 hours	Completion of Week 2	Practical	Practical exams
4	3 hours	Connecting by keys , their types ,uses ,drawing an assembly painting	Practical	Practical exams
5	3 hours	Completion of Week 4	Practical	Practical exams
6	3 hours	Splicing by welding , welding symbols,drawing an assembly plate with welding symbols placed	Practical	Practical exams
7	3 hours	Week 6 Continuation	Practical	Practical exams
8	3 hours	. Fastening by rivet , rivet bolt shaping, rivet fastening types,drawing Assembly panel	Practical	Practical exams
9	3 hours	Completion of Week 8	Practical	Practical exams
10	3 hours	Mechanical crane partitioning and assembly application panel	Practical	Practical exams
11	3 hours	Springs, types, uses,drawing a painting of a compression spring	Practical	Practical exams
12	3 hours	Exhaust valve partitioning and assembly application panel drawing	Practical	Practical exams

13	3 hours	Column joints (couplings), types, applied painting	Practical	Practical exams
14	3 hours	Some of them, their types and uses, with an applied painting	Practical	Practical exams
15	3 hours	Loading chairs, drawing an assembly painting of a friction loading chair	Practical	Practical exams

11.SUBSTRUCTURE	
Required textbooks	1. Principles of Geometric Drawing by Dr. Mohiuddin Al-Qashlan 2. General Mechanics Engineering Drawing by Hans Hydron 3. Engineering drawing using the software AutoCAD Sami Ali Nehme ,Publications of the Higher Institute of Industry ,Misrata
Key References (Sources)	Ellen Finkelstein, AutoCAD 2006 and AutoCAD LT 2006 Bible, Wiley Publishing, Inc., 2005..
Recommended books and references (scientific journals, reports,....)	Virtual Library of the Ministry of Higher Education and Scientific Research

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

Description of Industrial Drawing Course-2 (Level II)

Computer engineering drawing is one of the most important means of technological progress and communication in the world. Therefore, teaching engineering drawing using computers is an essential part of the curricula of engineering students and technical institutes in various disciplines.
Due to the urgent need for a tool to help those interested in computer-aided geometric drawing, AutoCAD software was chosen. With its ease of use and speed of implementation, it is one of the world's most popular computer-aided design (CAD) systems.Therefore, this module is designed to enable students to acquire the skill to deal with AutoCAD effectively and efficiently

1.Educational Institution	Northern Technical University/Kirkuk Technical Institute
2.Scientific Department/ Center	Department of Mechanical Technologies
3.Course Name /Code	Industrial drawing-2METP219
4.Available Attendance Forms	Attendance
5.Term / Year	-2024
6.Number of study hours (total)	45 hours for the second semester (3 hours per week)
7.Date this description was prepared	1 December 2024

8.Objectives of the Article :
Introduce the student to:
•Introduce the student to how to use different drawing tools in AutoCAD.
•Teaching the student to draw mechanical parts
•Teaching the student how to use the rules and set the required dimensions
•Teaching the student the projections, the pieces of the assembled parts and the methods of scraping
•The student will learn to conform to international engineering standards in reading the mechanical part and sorting it for designs

9. Course Outcomes and Teaching, Learning and Evaluation Methods

Knowledge Objectives

- Learn about industrial drawing and its methods of work
- AutoCAD mechanical part drawing
- AutoCAD mechanical penalty assembly
- Benefiting from the industrial drawing in projects

Teaching and Learning Methods

Practical lecture (with various means of explanation) , working on the operation of the machines and applying the exercises to them.

Valuation Methods
• The work of the year includes : (daily exam at the beginning of the lecture and includes the topic of the previous lecture, oral exams during the lecture with the same topic of the lecture , homework. • First Semester Examination • Chapter 2 • Final exam with its courses
Affective and Valuable Objectives
• Enhance appreciation of artistic beauty and precision in geometric drawing. • Encourage creativity and innovation in graphic design. • Promote teamwork and collaboration among students.

10- Material Structure				
Week	Hours	Intended Learning Outcomes Module / Course Name or Topic	Teaching Method	Method of Evaluation
Weekly	3	Industrial Drawing-2 Department of Mechanical Technologies	Practical	Practical exams
1	3 hours	Pulleys and belts, their types and uses, with two paintings to assemble parts containing On the wheels of various types of belts	Practical	Practical exams
2	3 hours	Gears Types , Neutral Gears Basic Definitions,Drawing the Neutral Gear with Gearbox interlock assembly plate	Practical	Practical exams
3	3 hours	Week 17 Completion	Practical	Practical exams
4	3 hours	Bevel Gears, Basic Definitions with Assembly Plate Drawing for Engaging Bevel Gear	Practical	Practical exams
5	3 hours	Twentieth Week Continuation	Practical	Practical exams
6	3 hours	Introduction to Autodesk Inventor Program and 2D graphic environment	Practical	Practical exams
7	3 hours	Week 21 Continuation	Practical	Practical exams
8	3 hours	Completion of thetwelfth week	Practical	Practical exams
9	3 hours	Autodesk Inventor and assembly environment	Practical	Practical exams
10	3 hours	Week Twenty-Four Completion	Practical	Practical

				exams
11	3 hours	Completion of the25th week	Practical	Practical exams
12	3 hours	Additions to fees	Practical	Practical exams
13	3 hours	Week Twenty-Seven Continuation	Practical	Practical exams
14	3 hours	A draft of the department's competence for a part of any panel process system	Practical	Practical exams
15	3 hours	Concrete , its components and uses	Practical	Practical exams

SUBSTRUCTURE	
Required textbooks	Foundation Workshops/General Organization for Technical Education and Vocational Training/ Kingdom of Saudi Arabia
Key References (Sources)	Production Operations Principles/Dr. Qahtan Khalaf Al-Khazraji
Recommended books and references (scientific journals, reports,....)	Virtual Library of the Ministry of Higher Education and Scientific Research

- Course development plan: The development plan is carried out through studies submitted through the annual scientific plan for the development of the course.

Description of the Quality Control Course (Level 2)

Introducing the student to the science of quality control and quality management to control the product, manage the quality of factories and factories, control production and many commercial matters

1.Educational institution	Northern Technical University/Kirkuk Technical Institute
2.Scientific Department/Center	Department of Mechanical Technologies
3.Course Name / Code	Quality Control METP225
4.Available forms of attendance	Daily
5.semester/ year	2024-2025
6.Number of study hours (total)	30 hours of prayer (2 hours per week)
7.Date of preparation of this description	1 December 2024

8.Objectives of the Article :

1.Helping the student to understand the subject and how to benefit from it in the future after graduation.

2.Enabling students to know the importance of quality control in industrial management.

3.Providing students with skills in quality knowledge and how to solve arithmetic problems related to quality management and control.

9. Course Outcomes and Teaching, Learning and Evaluation Methods

A-Knowledge Objectives

1- Identify the special scientific methods and means in quality control.
2- Introducing the student to the concept of quality control.
3- Identify special scientific methods and control the inputs and outputs of production in institutions.

B- Skills objectives of the course

1- Introduce the student to what product quality is and its impact on cost and consumption.
2- Explain the calculations used in industrial management and quality control.

Teaching and Learning Methods

The theoretical lecture using various means of explanation: such as data show , writing examples on the whiteboard , scientific reports.

Valuation Methods

1- Coursework includes : the daily exam at the beginning of the lecture and includes the subject of the previous lecture, oral exams during the lecture with the same subject of the lecture , scientific reports.
2- Monthly exams.
3- Examination of the first and second semesters.

10- Material Structure				
Week	hours	Module / Course Name or Topic	Teaching Method	Evaluation method
Weekly	hours	Quality Control	Practical,	STKs Examinations
1	2	Industrial Safety: Industrial safety, accident , types of accidents , roads from accidents , protective equipment and their types .	Theoretical	Daily and monthly exams
2	2	Quality control: the meaning of control , the meaning of quality .	Theoretical	Daily and monthly exams
3	2	Quality Control: Definition of quality , quality specifications, factors controlling quality , development and improvement of quality , design , quality of conformity , international and Iraqi standards	Theoretical	Daily and monthly exams
4	2	Quality control methods and sample inspection plans. Quality control methods, inspection and inspection methods, quality control steps, sample methods, sample inspection schedule.	Theoretical	Daily and monthly exams
5	2	Quality control methods and sample inspection plans: Operation feature curve, design quality, data collection (type and analysis) .	Theoretical	Daily and monthly exams
6	2	Control diagrams: Set up and use the middle diagram, set up and use the Pareto diagram.	Theoretical	Daily and monthly exams
7	2	Control Diagrams: Preparation of Diagram with Standard Deviation ,Preparation of Defects Diagram	Theoretical	Daily and monthly exams
8	2	Control diagrams: dispersion diagram, method of preparing dispersion diagram	Theoretical	Daily and monthly exams
9	2	Control Diagrams: Quality control diagrams for standard deviation and for defective unit ratio. Histogram (setup and use)	Theoretical	Daily and monthly exams
10	2	Types of control charts: control charts for	Theoretical	Daily and

		variables) control chart for the arithmetic medium (X-chart)		monthly exams
11	2	Types of control diagrams: control diagrams for variables) R-Chart control diagram and standard deviation control diagram (char).	Theoretical	Daily and monthly exams
12	2	Types of control charts: control charts for features) control chart for the percentage of defective units (P-chart).	Theoretical	Daily and monthly exams
13	2	Types of Control Charts: Control Charts for Features (Control Chart Number of Defects in a Single C-Chart)	Theoretical	Daily and monthly exams
14	2	Types of control charts: control charts for features) Average control chart Number of defects in the vocabulary group (U-chart)	Theoretical	Daily and monthly exams
15	2	Discussing reports submitted by students with a test	Theoretical	Daily and monthly exams

11. Infrastructure	
Required textbooks	1.Principles of Construction Management by:Roy Pilcher 2.Modren Construction Management by :F.Harris
Key References (Sources)	1. Construction planning ,Equipment and Methods 2.CriticalPath Method in Construction Practice by:Antill 3. Engineering Economy by De Garms
Recommended books and references	- The virtual library of the Ministry of Higher Education and Scientific Research - There are no books in the electronic library of the Institute

12: Course Development Plan
The development plan is carried out through studies submitted through teaching to the Scientific Committee to be studied and added to the annual plan for the development of the subject .