

**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: Southern Technical**

**College/Institute: Basra Technical Institute**

**Scientific Department: Mechanical Technologies/Production**

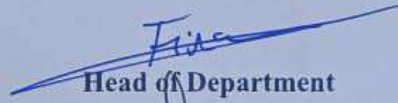
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## Academic Program Description:

This academic program description provides a concise summary of the program's key features and the learning outcomes the student is expected to achieve, demonstrating whether he or she has made the most of the opportunities available. It is accompanied by a description of each course within the program.

1. Educational Institution	Southern Technical University
2. Scientific Department / Center Basra Technical Institute	Department of Mechanical/Production Technologies
3. Name of Academic or Professional Program Mechanical	Production Technologies
4. Name of Final Certificate	Diploma in Mechanical/Production Technology
5. Semester Study	System
6. Accredited Accreditation Program	
7. Other External Influences	Training Courses / Field Visits / Summer Training
8. Date of Preparation of Description	2024
9. Objectives of the Academic Program:	
A. Preparing and qualifying technicians specializing in mechanics/production who are able to meet the requirements of the labor market.	
B. Creating appropriate conditions for developing theoretical and practical knowledge and skills.	
C. Providing distinctive programs and experiences in the field of specialization in a manner that conforms to international quality standards.	
D. Building and developing partnerships with governmental and private sectors and reviewing the needs of the labor market in terms of their need for technical expertise.	

C. Preparing and qualifying technicians capable of performing everything related to workshop and factory work in terms of operating equipment. Machines, production of mechanical tools and equipment, and repair of mechanical devices and equipment in a precise scientific manner.

10. Required program outputs and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Study different types of mechanical devices and machines that are used in the field of production.

A2- Study different types of tools and equipment that are used within the specialization or in the field of measurement.

A3- Identify the methods of designing models that are applied practically in workshops and factories.

A4- Identify the correct methods by which metals are operated and formed in workshops and factories.

A5- Identify the distribution of production operations on operating elements and preparing the technological path from production units to achieve the best method of performance.

B- Program skill objectives B- Program skill objectives

B1- Work on various operating machines (lathe, milling machine, scraper, other cutting machines).

B2- Work on computer and Internet technologies in developing self-skills in education and training.

B3- Gain experience in dealing with different types of machines and tools for measurement.

B4 - Gain experience in knowing how to analyze the performance of mechanical machines in production processes.

Teaching and learning methods

- Conducting practical experiments in laboratories and workshops and giving theoretical lectures.

- Scientific trips and field visits to work sites.

- Summer training and practical practice on devices in governmental and private institutions.

Evaluation methods

- Midterm and final exams.

- Short daily exams.

- Homework.

- Reports.

- Interaction within the lecture.

10. Required program outputs and teaching, learning and evaluation method 10.  
Required program outputs and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Study different types of mechanical devices and machines that are used in the field of production.

A2- Study different types of tools and equipment that are used within the specialization or in the field of measurement.

A3- Identify the methods of designing models that are applied practically in workshops and factories.

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B- Program skill objectives

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B2- Work on computer and Internet technologies in developing self-skills in education and training.

B3- Gain experience in dealing with different types of machines and tools for measurement.

B4 - Gain experience in knowing how to analyze the performance of mechanical machines in production processes.

Teaching and learning methods

- Conducting practical experiments in laboratories and workshops and giving theoretical lectures.

- Scientific trips and field visits to work sites.

- Summer training and practical practice on devices in governmental and private institutions.

Evaluation methods

- Midterm and final exams.

- Short daily exams.

- Homework.

- Reports.

- Interaction within the lecture.

C- Emotional and value objectives

C1- Guiding the student on the correct educational dealings with professors.

C2- Instilling the spirit of citizenship and cooperation among students.

C3- Establishing the principles of honesty and loyalty during work.

C4- Developing the principle of teamwork among students.

Teaching and learning methods

- Continuous educational seminars and courses.
- Guidance and follow-up lectures.
- Electronic seminars and workshops.

Evaluation methods

- Continuous assessment of student behavior during attendance.
- Direct discussion with students during lectures.
- Behavior change in some students and follow-up.

D- General and transferable qualification skills (other skills related to employability and personal development).

D1- Developing the student's ability to deal with technical means.

D2- Developing the student's ability to deal with the labor market.

D3- Developing the student's ability to deal with the Internet.

D4- Developing the student's ability to dialogue and discuss.s

Teaching and learning methods

- Explanation and clarification through lectures.
- Method of presenting scientific materials using different display devices.
- Self-learning through homework and mini-projects.
  - Laboratories.
  - Graduation projects.
  - Scientific visits.

Evaluation methods

- Testing the student's personality through discussion.
  - Interaction within the lecture.
  - Mini-projects within the lecture.

d. General and qualifying skills transferred (other skills related to employability and personal development).

D1- Developing the student's ability to deal with technical means .

D2- The student's ability to deal with the labor market.

D3- Developing the student's ability to deal with the Internet.

D4- Developing the student's ability to dialogue and discussion.

Teaching and learning methods

- Explanation and clarification through lectures.
- The method of displaying scientific materials with different projectors.
  - Self-learning through homework and mini-projects.
    - Laboratories.
    - Graduation projects.
    - Scientific visits.

Evaluation methods

- Test the student's personality through discussion.
  - Interaction within the lecture.
  - Mini-projects within the lecture.

1. Program Architecture

1. Program Architecture				Certificates and credit hours
Level/Year	Course or Course Code	Course Name	Credit Hours	
First Stage / First Semester		Accurate measurements	2N + 2p	Diploma degree Requires (95) units
		Properties of engineering materials	2N	
		Coefficient 1	6p yearly	
		Engineering Mechanics (Stillness)	2n + 3 p	
		Engineering Drawing 1	3p	
		Math	2N	
		Electricity Technology 1	1N + 2p	
		Human Rights and Democracy	1n	

		English Language 1	2N	
First Stage / Second Semester		Manufacturing Processes	2N + 2p	
		Engineering Materials	2N	
		modulus	6p yearly	
		Engineering Mechanics (Kinesiology)	2n +3 p	
		Math	2N	
		Computer Fundamentals 2	2 p	
		Engineering Drawing 2	3 N	
		Electricity Technology 2	1N + 2p	
		Crimes of the defunct Baath Party	1 n	

1. Program Architecture				2. Certificat es and credit hours
Level/Year	Course or Course Code	Course Name	Credit Hours	
Second Stage / First Semester		Machine Parts Technology 1	3 N	Diploma degree Requires (95) units
		Operating operations	2N+2P	
		Coefficient 2	6p yearly	
		Minerals 1	2n +2 p	
		Industrial Drawing 1	3p	
		Graduation Project	2p	
		Industrial Management	2N	
		English Language 2	2N	
Second Stage / Second		Machine Parts Technology 2	3 N	

Semester		Forming processes	2N+2P	
		Coefficient 2	6 p yearly	
		Metal 2	2N + 2G	
		Industrial Drawing 2	2N + 4 G	
		Graduation Project	3 p	
		Management and Quality Control	2 N	
		Computer Fundamentals 2	2 p	

### 1. Planning for personal development

- Training Courses
- Scientific research
- Scientific seminars and seminars
- Cultural, artistic and sports activities

### 2. Admission criterion (setting regulations related to admission to the college or institute)

Central admission for technological specialization.  
 Selection of the scientific department according to the rate, desire and experience in the field of specialization.

### 3. The most important sources of information about the program

- University and Institute Website.
- University Directory.



**Curriculum Skills Outline**

**Please tick the boxes corresponding to the individual learning outcomes from the program under evaluation.**

**Learning outcomes required from the program**

Year/Level	Course Code	Course Name	fundamental Or optional	Knowledge and understanding				Subject-specific skills				Thinking skills				General and transferred skills (or) other skills related to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
First Stage / First Semester		Accurate measurements	Essential	*	*	*	*			*	*	*	*	*	*	*	*	*	
		Properties of engineering materials	Essential	*	*							*	*	*	*	*	*	*	
		Coefficient 1	Essential									*	*	*	*	*	*	*	
		Engineering Mechanics (Stillness)	Essential									*	*	*	*	*	*	*	
		Engineering Drawing 1	Essential									*	*	*	*	*	*	*	
		Math	Essential									*	*	*	*	*	*	*	
		Electricity Technology 1	Essential				*	*	*		*	*	*	*	*	*	*	*	
		Human Rights and Democracy	Essential									*	*	*	*	*	*	*	
	English Language 1	Essential									*	*	*	*	*	*	*		
First Stage / Second Semester		Manufacturing Processes	Essential	*	*	*	*			*	*	*	*	*	*	*	*	*	
		Engineering Materials	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		modulus	Essential		*							*	*	*	*	*	*	*	
		Engineering Mechanics (Kinesiology)	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Math	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
		Computer Fundamentals 2	Essential	*	*		*					*	*	*	*	*	*	*	
		Engineering Drawing 2	Essential									*	*	*	*	*	*	*	
		Electricity Technology 2	Essential									*	*	*	*	*	*	*	
		Crimes of the defunct Baath Party	Essential									*	*	*	*	*	*	*	

**Curriculum Skills Outline**

**Please tick the boxes corresponding to the individual learning outcomes from the program under evaluation.**

**Learning outcomes required from the program**

Year/Level	Course Code	Course Name	fundamental Or optional	Knowledge and understanding	Subject-specific skills	Thinking skills	General and transferred skills (or) other skills related to employability and
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												personal development							
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
First stage		Machine Parts Technology 1	Essential	*	*	*	*			*	*	*	*	*	*	*	*	*	*
		Operating operations	Essential	*	*							*	*	*	*	*	*	*	*
		Coefficient 2	Essential										*	*	*	*	*	*	*
		Minerals 1	Essential										*	*	*	*	*	*	*
		Industrial Drawing 1	Essential										*	*	*	*	*	*	*
		Graduation Project	Essential										*	*	*	*	*	*	*
		Industrial Management	Essential				*	*	*		*		*	*	*	*	*	*	*
	English Language 2	Essential										*	*	*	*	*	*	*	
Second stage		Machine Parts Technology 2	Essential	*	*	*	*			*	*	*	*	*	*	*	*	*	*
		Forming processes	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Coefficient 2	Essential		*								*	*	*	*	*	*	*
		Metal 2	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Industrial Drawing 2	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Graduation Project	Essential	*	*		*						*	*	*	*	*	*	*
		Management and Quality Control	Essential										*	*	*	*	*	*	*
		Computer Fundamentals 2	Essential										*	*	*	*	*	*	*

## Description of the courses for the first stage / first semester + second semester

### Course Description 3

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

1. Educational institution	Southern Technical University / Basra Technical Institute
2. Scientific Department / Center	Mechanical Techniques
3. Course Name/Code	Properties of Engineering Materials, Engineering Materials
Available Attendance Forms	Came
5. Semester/Year	First
6. Number of credit hours (total)	30 hours per class
7. Date of preparation of this description	9/5/2024
<b>8. Course Objectives</b>	
<p>Enable the student to identify engineering materials and their properties, which are used in many applications.</p> <p>Enable the student to understand the mechanical, chemical, magnetic and electrical properties of materials and the extent of their impact on applications.</p> <p>Providing the student with experience in dealing with engineering materials and knowing their different properties in applications.</p> <p>Give an idea to the student about the different tests and how to deal with engineering materials through tests.</p>	

## 9. Course Outcomes and Methods of Teaching, Learning and Assessment

### A- Cognitive objectives

A1- Clarifying the basic concepts of engineering materials, their properties and applications in various fields.

A2- Acquire the necessary skills in dealing with engineering materials.

A3- Acquire the necessary skills in how to understand the properties of engineering materials.

### B. Program Skills Objectives

B1 – Teaching the student how to deal with the properties of engineering materials correctly.

B2 – Training students on how to conduct various engineering tests for engineering materials.

B3 – Teaching students how to deal with engineering materials in proportion to their properties.

### Teaching and learning methods

Lectures: Using the direct in-person lecture method for students to clarify the methodological material correctly

Giving exercises and homework.

Assigning students to prepare reports on engineering materials and their characteristics.

### Evaluation methods

Daily exams.

Homework.

Semester and final exams.

Interaction within the lecture.

Daily Attendance.

### C- Emotional and value goals.

C1- Focus: Raising students' attention to engineering materials and their characteristics.

C2- Response: Follow up the student's interaction with the subject under study.

C3- Interest: Follow-up of students' interests and interaction with the different applications of the properties of engineering materials.

C4- Identifying students' attitudes and directing the student to deal with the properties of engineering materials completely.

### Teaching and learning methods

Lectures: Using the direct in-person lecture method for students to clarify the methodological material correctly  
 Giving exercises and homework .  
 Assigning students to prepare reports on engineering materials and their characteristics.

Evaluation methods

Daily exams.  
 Homework.  
 Semester and final exams.  
 Interaction within the lecture.  
 Daily Attendance.

- d. General and rehabilitative skills transferred (other skills related to employability and personal development).  
 D1- Developing the student's ability to deal with the methods of properties of engineering materials.  
 D2- Developing the student's ability to search for the engineering properties of materials on the Internet .  
 D3- Developing the student's ability to deal with applications and tests of the properties of engineering materials.  
 D4- Developing the student's ability to dialogue and discussion.

11. Infrastructure

1. Required textbooks	Principles of Metallurgical and Materials Engineering , Engineering Metallurgy (Applied Physical Metallurgy).
2. Main references (sources)	Engineering materials and their tests, properties of engineering materials. Basic Engineering Metallurgy Theories Principles and application Aarkeyser Keyser
A. Recommended books and references (scientific journals, reports, 0000)	Metallurgical Physics
B. Electronic References, Websites	Choosing Engineering Materials - Google Books

12. Course Development Plan

Continuous access to the latest theories and concepts of engineering materials. Writing scientific research, publishing it or delivering it at conferences held at the university.

Attending workshops, lectures and conferences related to the scientific material.

## Course Description 4

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

1. Educational institution	Technical Institute / Basra
2. Scientific Department / Center	Mechanical Technologies/Production Branch
3. Course Name/Code	Engineering Mechanics (1) Static - Engineering Mechanics (2) Kinetic
4. Available Attendance Forms	Came
5. Semester/Year	First+Second 2023/20241
6. Number of credit hours (total)	06 hours theoretical 90 hours practical
7. Date of preparation of this description	10/5/2024
<b>8. Course Objectives</b>	
1- The student can identify engineering mechanics in terms of forces, momentum, friction and the effect of forces on bodies and their movement.	
2- The doctor can identify laboratory devices that measure some concepts such as the moment of inertia, the balance of force and result.	
3- The student can calculate the angles and direction of forces and motion.	

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

A- Cognitive objectives

- A1- Clarifying the basic objectives related to engineering mechanics.
- A2- Acquire skill in solving problems related to the lesson.
- A3- Acquire skill in using the electronic calculator.

B. Program Skills Objectives

- B1 – The student acquires the skill of applying what he has learned from the theoretical side to the practical side.
- B2 – The student acquires the skill of solving problems related to the topics of the lesson.

Teaching and learning methods

- 1- Use the traditional blackboard.
- 2- Use presentations to facilitate explanation and use of time.
- 3- Using discussion to solve problems.
- 4- Allow students to participate in solving problems.

Evaluation methods

- 1- Discussion in class.
- 2- Conducting a daily exam in each semester.
- 3- Giving homework.
- 4- Mid-term exams.

C- Emotional and value goals.

- C1- Make the student relate to the subject.
- C2- Follow-up students by distributing attention within the class to everyone.
- C3- Linking the topics of the subject to daily life.
- A4- Give concrete examples.

Teaching and learning methods

- 1- Brainstorming.
- 2- Traditional explanation.
- 3- Using modern methods as a projector.

Evaluation methods

- 1- Daily evaluation.
- 2- Evaluation of homework.
- 3- Evaluation of daily and semi-quarterly exams.

4- Interaction inside the hall during the lesson.

d. General and rehabilitative skills transferred (other skills related to employability and personal development).

D1- Developing the student's skill to deal with the vocabulary of engineering mechanics.

D2- Developing the student's skill to use the Internet in solving problems.

D3- Developing the student's skill using the Internet and resources to learn more.



10. Structure of the Course/First Semester

The week	Hours	Required Learning Outcomes	Topic Name	Method of education	Evaluation method
First	5		General concepts, forces, vectors and units of measurement	Lecture in attendance	In-class discussion
Second	5		Force Analysis	Lecture in attendance	Homework
Third	5		Outcome	Lecture in attendance	Homework
Fourth	5		Determination of forces	Lecture in attendance	In-class discussion
V	5		Determination of forces	Lecture in attendance	Student participation in the solution
Sixth	5		Dual torque	Lecture in attendance	Daily exam
Seventh	5		Equilibrium of forces and free body diagram	Lecture in attendance	Solve an assignment in class
Eighth	5		Conditions for equilibrium of forces	Lecture in attendance	In-class discussion
Ninth	5		Conditions for equilibrium of forces	Lecture in attendance	Homework
X	5		Friction and its types.	Lecture in attendance	Homework
Eleventh	5		Engineering Shapes Centers	Lecture in attendance	Homework
Twelfth	5		Composite Shapes Center	Lecture in attendance	Solve examples on the board
Thirteenth	5		Composite Shapes Center	Lecture in attendance	Solve examples on the board
Fourteenth	5		The torque of the following shortcomings of the shapes	Lecture in attendance	Question & Answer
Fifteenth	5		Torque of	Lecture in	Homework

			inertia for composite shapes	attendance	
<b>Course Structure Chapter II</b>					
First	5		Newton's Second Law	Lecture in attendance	Question & Answer
Second	5		Types of motion, linear motion with constant speed	Lecture in attendance	Homework
Third	5		Linear motion with constant acceleration	Lecture in attendance	Homework
Fourth	5		Movement on a curved line	Lecture in attendance	Solve examples
V	5		Angular motion and relative motion	Lecture in attendance	Assignment in class
Sixth	5		Work, Capacity & Energy	Lecture in attendance	Question & Answer
Seventh	5		Material resistance and basic concept	Lecture in attendance	Question & Answer
Eighth	5		Loads, voltage, stress, flexibility, plasticity and deformation	Lecture in attendance	Question & Answer
Ninth	5		Hook's law, curved voltage and stress	Lecture in attendance	The student draws the outline on the board
X	5		The normal voltage expected from an axial load. 1- Uniform section. 2- Variable section	Lecture in attendance	Assignment in class
Eleventh	5		Shear voltage	Lecture in attendance	Question & Answer
Twelfth	5		Torsional	Lecture in	Daily exam

			voltage	attendance	
Thirteenth	5		Thermal voltage	Lecture in attendance	Homework
Fourteenth	5		Bridges, types of loads, types of bridges	Lecture in attendance	Homework
Fifteenth	5		Shear strength, bending torque, simple bridge support under axial load	Lecture in attendance	In-class discussion

### 11. Infrastructure

1. Required textbooks	Engineering Mechanics static & dynamics Bed four & flower 4 <sup>th</sup> ed. 2005
2. Main references (sources)	1- Higdon & Stiles Engineering Mechanics 2- Engineering Mechanics by singer
A. Recommended books and references (scientific journals, reports, 0000)	Singh ,Sadhu Strength of Martial 4 <sup>th</sup> ed.2007
B. Electronic References, Websites	

### 12. Course Development Plan

- 1- Follow-up of emerging research related to the vocabulary of the curriculum.
- 2- Conducting workshops and seminars related to the vocabulary of the curriculum.
- 3- Linking student projects with the vocabulary of the curriculum.

## Course Description 5

<del>This course description provides a brief summary of the most important</del>	
1. Educational institution	Southern Technical University \ Basra Technical Institute
2. Scientific Department / Center	Mechanical techniques
3. Course Name/Code	Engineering Drawing 1 + Engineering Drawing 2
4. Available Attendance Forms	Came
5. Semester/Year	First+Second\2023\2024
6. Number of credit hours (total)	45 hours per class
Date of preparation of this description	9\5\2024
<b>8. Course Objectives</b>	
<p>Enable the student to identify the method of two-dimensional and three-dimensional engineering drawing  Through the use of AutoCAD 2007 in the computer and the method of building the drawing from  During the identification of points with Cartesian coordinates, whether the drawing is 2D or 3D, which enables the student  From imagining the shapes and looking at them from several sides (front, side and vertical perspective) and this  It is done with practical application and continuous tests and make the lecture tend to a practical nature.</p>	

## 9. Course Outcomes and Methods of Teaching, Learning and Assessment

### A- Cognitive objectives

- 1- Clarify the environment of the AutoCAD program and the necessary tools for engineering drawing.
- 2- Learn about drawing aids and how to use them.
- 3- How to determine and deal with drawing projections.

### B. Program Skills Objectives

- 1 - Acquire skills in engineering drawing.
- 2 - Employing what the student has learned in the labor market.
- 3 - Output the final results of the drawing professionally.

### Teaching and learning methods

Lectures: Using PowerPoint presentations to facilitate explanation and drawing step by step on the display screen  
And write the dimensions and points by extracting them during the lecture on the board.

### Evaluation methods

- Daily exams.
- Homework .
- Semester and final exams for the subject .
- Interaction within the lecture .
- Daily Attendance.
- Pursuit 50%.

### C- Emotional and value goals.

- Focus: Raising students' attention on how to use the drawing tool.
- Response: Follow up the student's interaction with the material during the drawing.
- Attention: Follow up on students' interests and interact with engineering drawing methods if it is 2D or 3D .
- Determine the attitudes of students and direct the student to deal with the engineering drawing material completely.

### Teaching and learning methods

Lectures: Using presentations to facilitate the explanation of the prescribed fees.  
Homework: Fee forms.

### Evaluation methods

- Daily exams .

-Homework .

Semester and final exams for the subject.

Interaction within the lecture .

Daily Attendance.

Final Exam 50%.

d. General and transferable skills (other skills related to employability and personal development).

1- Developing the student's ability to deal with engineering drawing methods using Autocad2007

2- Developing the student's ability to see the drawing from different directions.

5. Course Structure

The week	Hours	Required Learning Outcomes	Name of the unit/course or topic	Method of education	Evaluation method
1	3	The student should be able to recognize the importance of Computer Engineering Drawing	The importance of engineering drawing \ Computer Use Program (AutoCAD program) for drawing \ Artboard Sizes \ Drawing geometric shapes \	Face-to-face lectures	Interaction with the lecture
2	3	The student should be able to know about computer aids.	Fee Adjustments / Aids Computer Drawing (AutoCAD program)	Face-to-face lectures	Daily exams
3	3	The student should be able to Knowledge of engineering operations and method of dimensional coordination	Types of lines for engineering drawing \ engineering processes \ Dimensional mode	Face-to-face lectures	Interaction with the lecture
4 and 5	6	The student should be able to To know the methods of perspective drawing	Perspective drawing	Face-to-face lectures	Homework
6, 7 and 8	9	The student should be able to to absorb the theory of projection and Draw simple projections	Projection theory \ Draw simple projections	Face-to-face lectures	- Homework
9	3	The student should be able to On drawing by hand paintings on projections	Hand drawing paintings on projections	Face-to-face lectures	Daily exam
10 and 11	6	The student should be able	Hand drawing	Face-to-	Interaction

		to On knowledge and understanding method Hand drawing paintings on projections	paintings on projections	face lectures	with the lecture
12, 13 and 14	9	The student should be able to On drawing geometric shapes	The importance of engineering drawing \ Using the computer to draw \ Artboard Sizes \ Drawing geometric shapes	Face-to-face lectures	Daily Attendance
15	3	Semester exam	Semester exam	Semester exam	Semester exam
16 and 17	6	The student should be able to On knowledge and understanding method draw prime projections with even angles,	draw prime projections with even angles,	Face-to-face lectures	Interaction with the lecture
18 and 19	6	The student should be able to On knowledge and understanding method Conclusion of the third projection of the projectors	Conclusion of the third projection of the projectors	Face-to-face lectures	Interaction with the lecture
20 and 21	6	The student should be able to On knowledge and understanding method Deduce perspective from two or three projections	Deduce perspective from two or three projections	Face-to-face lectures	Homework discussion
22 and 23	6	The student should be able to On knowledge of the shapes of cutting lines by material	Cuts / Cutting Lines Shapes by Material	Face-to-face lectures	Interaction with the lecture
24 and 25	6	The student should be able to On the knowledge of the method of drawing projections of pieces from	Drawing of cut projections from one projection	Face-to-face lectures	Interaction with the lecture



		one projection			
26 and 27	6	The student should be able to On the knowledge of the method of drawing a partially cut projection	Partially cut drop drawing	Face-to-face lectures	Daily attendance
28 and 29	6	The student should be able to On knowledge and understanding method Draw zigzag sections	Drawing a half-cut projection / drawing zigzag sections	Face-to-face lectures	Interaction within – Lecture Discussion
30	3	Semester exam	Semester exam	Semester exam	Semester exam

## Chapter One

## Chapter Two

draw prime projections with even angles,.	1 + 2
Vocabulary details	The week
The importance of engineering drawing \ computer use program (AutoCAD program) for drawing \ drawing board sizes \ drawing geometric shapes.	1
Fee Adjustments / Computer Drawing Aids (AutoCAD Program).	2
Types of lines for engineering drawing \ engineering operations \ dimensional mode.	3
Perspective drawing	4 and 5
Projection theory \ drawing simple projections.	6, 7 and 8
Hand drawing paintings on projections	9
Hand drawing paintings on projections	10 and 11
The importance of engineering drawing \ using computers to draw \ drawing board sizes \ drawing geometric shapes.	12, 13, 14 and 15
Conclusion of the third projection of the projectors.	3 + 4
Deduce perspective from two or three projections.	5 + 6
Cuts / Cutting Lines Shapes by Material.	7 + 8
Drawing of cut projections from one projection.	9 + 10

Partially cut drop drawing.	11 + 12
Drawing a half-cut projection / drawing zigzag sections.	13 + 14+15

### 6. Course Development Plan

- Continuous access to the latest theories and concepts of engineering drawing specialized in mechanics
- Attending workshops, lectures and conferences related to scientific material

## Course Description6

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

1. Educational institution	Southern Technical University \ Basra Technical Institute
2. Scientific Department / Center	Mechanical techniques
3. Course Name/Code	Mathematics\1+Mathematics\2
Available Attendance Forms	Came

5.Semester/Year	First+Second\2023\2024
6.Number of credit hours (total)	30 hours per class
7.Date of preparation of this description	5\5\2024
<b>8.Course Objectives</b>	
<ul style="list-style-type: none"> <li>- Enable the student to learn about mathematics in general and its applications in various experiments.</li> <li>- Enable the student to know and understand mathematics and perform the steps correctly and properly in solving mathematical problems.</li> <li>- Providing the student with the skills of dealing with different departments of mathematics and the various uses of mathematical applications.</li> <li>- Enable the student to solve complex problems and various applications in various fields.</li> </ul>	

<b>9.Course Outcomes and Methods of Teaching, Learning and Assessment</b>
<b>A- Cognitive objectives</b>
<ol style="list-style-type: none"> <li>1 Clarify the basic concepts of mathematics and their applications in various fields.</li> <li>2. Acquire skill in solving math problems.</li> <li>3. Acquire basic skills to understand the basics of mathematics.</li> <li>4. Gain experience in various applications of mathematics.</li> </ol>
<b>B. Program Skills Objectives</b>
<ol style="list-style-type: none"> <li>1. Teaching the student the methods of applying mathematical concepts correctly.</li> <li>2. Training students to solve various mathematical problems with different data types.</li> <li>3. Training students with the benefit of wasting the use of mathematics and processing the applications if renewed if any.</li> <li>4. Teach students how to read the results of mathematical problems and interpret them correctly.</li> </ol>

### Teaching and learning methods

Lectures use presentations to facilitate the explanation of the topics of the article. . Give exercises and exercise solutions to students.  
Assigning students to prepare reports on various topics of mathematics.  
. Give a topic assignment at the end of each lecture to solve mathematical problems.

### Evaluation methods

- Daily exams. -Homework.
  - Semester and final exams for the subject.
  - Interaction within the lecture.
  - Daily attendance.
- Pursuit 40%.

### C- Emotional and value goals.

- Focus: Raising students' attention to solving mathematical problems.
- Response: Follow up on the student's interaction with the subject under resolution.
- Attention: Follow up on students' interests and interact with different applications of mathematics.
- . Identify students' attitudes and direct the student to deal with mathematics fully

### Teaching and learning methods

Lectures use presentations to facilitate the explanation of the topics of the article. Give exercises and solutions to exercises for students.  
Assigning students to prepare reports on various topics of mathematics.  
Give a topic assignment at the end of each lecture to solve mathematical problems.

### Evaluation methods

Daily exams.

-Homework. Semester and final exams for the subject.

Interaction within the lecture.

Daily attendance.

Final exam 60%.

d. General and transferable skills (other skills related to employability and personal development. 1. Develop the student's ability to deal with

modern mathematics methods. 2. Developing the student's ability to deal with mathematics on the Internet. 3. Develop the student's ability to deal with multiple applications of mathematics. 4. Develop the student's ability to dialogue and discuss.

## 11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title In-person lectures	Teaching Method	Assessment Method
1	2	determinants, determinants of the second and third order	The student should be able On knowledge and understanding For basic theorems and definitions related to determinants, determinants of the second and third order. In-person lectures	In-person lectures	Homework
2	2	determinants, determinants of the second and third order	The student should be able On knowledge and understanding determinants, determinants of the second and third order.	In-person lectures	Daily exams
3	2	Cramer's method for determinants	The student should be able In-person lectures On knowledge and understanding determinants, determinants of the second and third order.	In-person lectures	Interaction within the lecture
4	2	basic theorems and definitions related to derivatives	The student should be able On knowledge and understanding For basic theorems and definitions related to derivatives	In-person lectures	Homework
5	2	derivatives of trigonometric functions	The student should be able On knowledge and understanding derivatives of trigonometric functions	In-person lectures	Semester and final exams for the subject

7	2	derivatives of exponential functions	The student should be able On knowledge and understanding With exponential functions	In-person lectures	Interact with the lecture
8	2	derivatives of logarithmic functions	The student should be able On knowledge and understanding derivatives of logarithmic functions	In-person lectures	Interact with the lecture  Homework
9	2	implicit functions	The student should be able On knowledge and understanding derivatives of implicit functions In-person lectures	In-person lectures	Interact with the lecture
10	2	chain base	The student should be able On knowledge and understanding With chain base	In-person lectures	Interact with the lecture
11	2	Engineering derivative applications	The student should be able On knowledge and understanding Engineering derivative applications	In-person lectures	Homework Discussion and solution of exercises, quick exam, homework



12	2	Applications of the physical derivative	The student should be able On knowledge and understanding Applications of the physical derivative	In-person lectures	Semester and final exams for the subject  Interact with the lecture  Interaction within – lecture, discussion and solution of exercises, quick exam, homework  Interaction within – lecture, discussion and solution of exercises, quick exam, homework
13	2	Applications of the derivative of maximum and minimum limits	The student should be able On knowledge and understanding Applications of the derivative of maximum and minimum limits	In-person lectures	
14	2	Drawing functions	The student should be able On knowledge and understanding Drawing functions	In-person lectures	
16+ 17 18	2	definite and indefinite integration	The student should be able On knowledge and understanding by definite and indefinite integration	In-person lectures	
19 20 21	2	methods of integration	The student should be able On knowledge and understanding For the basic theorems and definitions related to the methods of integration, the method of division, and the method of partial fractions	In-person lectures	

23 24	2	applications on definite integration, the area between the function curves and the axes and the area between two curves	The student should be able On knowledge and understanding Definite integration, applications on definite integration, the area between the function curves and the axes and the area between two curves	In-person lectures	Interaction within the lecture	
27 28	2	statistics, statistical operations, frequency distributions, histogram, frequency curve, arithmetic mean and geometric mean.	The student should be able On knowledge and understanding For basic theorems and definitions related to statistics, statistical operations, frequency distributions, histogram, frequency curve, arithmetic mean and geometric mean	In-person lectures	interaction within – lecture Interaction within – lecture, discussion and solution of exercises, quick exam, homework	
			29	2	Probability	In-person lectures

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Calculus and analytic Geometry by Thomas University Calculus with Analytic Geometry ) Morry
Special requirements (include for example workshops, periodicals, IT software, websites)	Calculus and analytic Geometry by Thomas <a href="https://mathblog.com/mathematics-books">https://mathblog.com/mathematics-books</a>
Community-based facilities (include for example, guest Lectures , internship , field studies)	<a href="https://mathblog.com/mathematics-books">https://mathblog.com/mathematics-books</a>

13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

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

### Course Description7

1. Educational institution	Technical Institute / Basra
2. Scientific Department / Center	Mechanical techniques
3. Course Name/Code	Electricity Technology 1 + Electricity Technology 2

4. Available Attendance Forms	Came
5. Semester/Year	2023-2024
6. Number of credit hours (total)	30 hours
7. Date of preparation of this description	9/5/2024
8. Course Objectives	
- Enables the student to identify basic principles related to electricity in general.	
- Learn about some basic terms related to electricity	
-Identify the foundations of electrical fault analysis	
- Enable the student to analyze the basic electrical circuits	

### 9. Course Outcomes and Methods of Teaching, Learning and Assessment

#### A- Cognitive objectives

- A1- Clarification of terms related to electrical quantities
- A2- Acquire the skill of analyzing basic electrical circuits
- A3- Acquire the skill of analyzing general electrical faults
- A4- The possibility of calculating some electrical quantities for certain cases

#### B. Program Skills Objectives

- B1 – Teaching the student how to distinguish between different electrical terms
- B2 - Acquire the skill of analyzing general electrical faults
- B3 – Acquire the skill of analyzing electrical circuits

#### Teaching and learning methods

Lectures mainly - the use of presentations - the solution of some problems and scientific discussion

Students make research reports on specific topics within the scientific subject

### 11. Course Structure

Week	H o u r s	ILOs	Unit/ Modul e or Topic Title	Tea chi ng Me tho d	Ass ess men t Met hod
1	1	Reali zing the basic s of elect ricit y	Electr icity basics	Lec tur es - dis cus sio n - bra in sto rm	Test s - ho me wor ks- exa ms
2	1	Kno wing sym bols and syste m of units	Electr ic symp ols and units- simpl e electr ic circui t- electr	Lec tur es - dis cus sio n - bra in sto rm	Test s - ho me wor ks- exa ms

			ic curre nt - electr omoti ve force and voltage		
3	1	Knowing the items of the specific subject	Poten tial differ ence - Ohms law- resist ors conne ctions (serie s, parall el and compl ex)	Lec tur es - dis cus sion - bra in sto rm	Test s - ho me wor ks- exa ms
4	1	Solut ion of som e relat	Exam ples on some electr ic	Lec tur es - dis cus	Test s - ho me wor ks-

		ed exa mple s	circui ts	sio n - bra in sto rm	exa ms
5	1	Know ing the subj ect of basic AC syste m	Alter natin g curre nt	Lec tur es - dis cus sio n - bra in sto rm	Test s - ho me wor ks- exa ms
6	1	Know ing the type s of AC gene ratin g stati ons	Gener ating AC - Powe r statio ns types	Lec tur es - dis cus sio n - bra in sto rm	Test s - ho me wor ks- exa ms
7	1	Reali zing	Sine waves	Lec tur	Test s -

		and understanding effective values of AC quantities	for voltage and current-Effective values	es - discussion - brainstorm	home works-exams
8	1	Knowing of subject introduced- understanding related examples	Power factor - applied examples on AC circuits	Lectures - discussion - brainstorm	Tests - home works-exams
9	1	Understanding	Electromagnetism and	Lectures -	Tests - home



		subject specified	magnetic field merits	discussion – brain storm	works-exams
10	1	Knowing the specified subject	Magnetic materials definitions	Lectures – discussion – brain storm	Tests – homeworks-exams
11	1	Understanding the subject-solution of some related	Magnetic effect of electric current-examples	Lectures – discussion – brain storm	Tests – homeworks-exams

		examples			
12	1	Realizing the 3-phase AC system basic issues	Three phase current system	Lectures - discussion - brainstorm	Tests - homeworks-exams
13	1	Knowing the characteristics of each AC system	Single and three phase AC systems - A comparison	Lectures - discussion - brainstorm	Tests - homeworks-exams
14	1	Understanding of the	Connection of electric	Lectures - dis	Tests - homework

		met hod of load conn ectio n	loads	cus sio n - bra in sto rm	ks- exa ms
15	1	Reali zing the speci fied Star conn ectio n	Star- conne ction techni que	Lec tur es - dis cus sio n - bra in sto rm	Test s - ho me wor ks- exa ms
12. Infrastructure					
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER			Electric circuits theory by John Bird , Th		
Special requirements (include for example workshops, periodicals, IT software, websites)					
Community-based facilities (include for example, guest Lectures , internship , field studies)					
13. Admissions					
Pre-requisites					
Minimum number of					

students	
Maximum number of students	

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

### Course Description8

1. Educational institution	Southern Technical University
2. Scientific Department / Center	Basrah Technical Institute - Scientific Section: Medical Laboratory Techniques
3. Course Name/Code	Human Rights and Democracy
4. Available Attendance Forms	Weekly/Theoretical Attendance
5. Semester/Year	Quarterly
6. Number of credit hours (total)	Weekly 2 hours theoretical
Date of preparation of this description	12/ 12 /2022
<b>8. Course Objectives</b>	
1- Identify the general concepts of human rights and democracy	
2- The student learns about the continuous awareness of human rights and the fundamental freedoms associated with them	

## 9. Course Outcomes and Methods of Teaching, Learning and Assessment

### A- Cognitive objectives

- 1- **Defending human dignity**
- 2- **Contribute to changing human life**
- 3- **Stand against all violations of human dignity**
- 4- **Awareness of the individual of rights and duties**
5. **Right to personal integrity**
- 6- **Ensuring freedom of opinion and expression in a manner that does not conflict with the constitutional text**

### B. Program Skills Objectives

- 1- Introducing the student to the existence of guarantees that guarantee rights
- 2- Introducing the student to the subordination of rulers and convicts before the law
- 3- Introducing the student that everyone enjoys rights and duties
- 4- Introducing the student to the supervisory role played by governmental and non-governmental organizations
- 5- Introducing the student to the constitutionality of laws

### Teaching and learning methods

- 1- Using references and periodicals and using modern means of learning such as the Internet
- 2- Classroom discussions
- 3- Contribute to the additions that contribute to the development of the course

### Evaluation methods

- 1- Discussing student reports
- 2- Short surprise exams
3. Reports and homework
- 4- Extra-curricular activities

### C- Emotional and value goals.

- 1- Preparing students for how to think
- 2- Exercise the spirit of responsibility and challenge, and be able to address it.
- 3- Raising graduates on the principles of ethical and financial integrity.
- 4- Fights everything that aims to ignore, undermine or infringe on rights
- 5- Working on the establishment of civil society organizations

## Teaching and learning methods

1-Lectures

Reports

Discussion

## Evaluation methods

Oral test

Surprise exam

Written exam

Daily activity

d. General and rehabilitative skills transferred (other skills related to employability and personal development).

1. Awareness of rights and duties

2- The existence of constitutional and judicial guarantees

3- The supervisory role of the authorities responsible for control of all kinds

## 11. Course Structure

### First semester

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1-	2	Definition of human rights and their goals	Human Rights	Theoretical	Discussion
2-	2	Human rights in civilizations	Ways to Express Focus	Theoretical	Daily tests
3-	2	Human rights in heavenly laws with a focus on the Islamic religion	Human Rights	Theoretical	Daily tests
4-5	2	Human rights in contemporary history and regional recognition of human rights and non-governmental organizations	===	Theoretical	Discussion
6-7	2	Human rights in Iraqi constitutions	===	Theoretical	Daily tests

		and the relationship of rights to public freedoms			
8 -10	2	Modern human rights and their guarantees	===	Theoretical	Discussion
11 - 14	2	Democracy, its definition, types and concepts	Human Rights	Theoretical	Discussion
15	2	The concept of freedoms and their classification	===	Theoretical	Discussion

2. Infrastructure	
1. Required textbooks	
2. Main references (sources)	Hamid Hanoun Khaled, Human Rights
A. Recommended books and references (scientific journals, reports)	Ahmed Fathi Sorour, Constitutional legitimacy and human rights Riyad Aziz Hadi , Human Rights Hamid Hanoun Khaled, Human Rights
B. Electronic References, Websites	



### 3. Course Development Plan

- 1- Update course vocabulary
  - 2- Accreditation of main sources
- Suitability and compatibility of the theoretical aspect of the course with what the student actually needs with the required specialization

## Course Description<sup>9</sup>

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

1. Educational institution	Southern Technical University
2. Scientific Department / Center	Basrah Technical Institute - Scientific Section: Mechanical Techniques
3. Course Name/Code	Baath Party Crimes in Iraq
Available Attendance Forms	Weekly/Theoretical Attendance
5. Semester/Year	Quarterly
6. Number of credit hours (total)	Weekly 2 hours theoretical
Date of preparation of this description	12/ 12 /2022

## 8. Course Objectives

1- Identify the general concepts of human rights and democracy

2- The student learns about the continuous awareness of human rights and the fundamental freedoms associated with them

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

A- Cognitive objectives

**1- Achieving justice for the families of the victims of the dissolved Baathist regime**

**Introducing new generations to the extent of the destruction inflicted by the Baath in Iraq**

**3- Studying the genocide suffered by Iraqis at the hands of the Baath Party**

B. Program Skills Objectives

1- Introducing the student to the existence of guarantees that guarantee rights

2- Introducing the student to the subordination of rulers and convicts before the law

3- Introducing the student that everyone enjoys rights and duties

4- Introducing the student to the supervisory role played by governmental and non-governmental organizations

5- Introducing the student to the constitutionality of laws

Teaching and learning methods

1- Using references and periodicals and using modern means of learning such as the Internet

2- Classroom discussions

3- Contribute to the additions that contribute to the development of the course

Evaluation methods

1- Discussing student reports

2- Short surprise exams

3. Reports and homework

4- Extra-curricular activities

C- Emotional and value goals.

1- Preparing students for how to think

2- Exercise the spirit of responsibility and challenge, and be able to address it.

3- Raising graduates on the principles of ethical and financial integrity.

4- Fights everything that aims to ignore, undermine or infringe on rights

5- Working on the establishment of civil society organizations

Teaching and learning methods

1- Lectures

2- Reports

3. Discussion

Evaluation methods

- 1- Oral test
- 2- Surprise exam
- 3- Written exam
- 4- Daily activity

d. General and rehabilitative skills transferred (other skills related to employability and personal development).

1. Awareness of rights and duties
- 2- The existence of constitutional and judicial guarantees

## 2. Course Structure

The week	Hours	Required Learning Outcomes	Name of the unit/course or topic	Method of education	Evaluation method
1-	2	Baath crimes according to the law of the Supreme Iraqi Criminal Tribunal	Crimes of the dissolved Baath	Prepared and updated lectures	Oral and written tests and daily activity
2-	2	Definition of crime, its divisions and types of international crimes	The concept of crime	= =	Surprise test, reports and discussion
-5	2	Mechanisms of psychological crimes and their effects	Psychosocial crimes	= =	= =
6 – 7	2	Photos of violations of Iraqi laws	Violations of laws	= =	= =
8 -10	2	Military and radioactive contamination	Environmental Crimes	= =	= =
11 -14	2	Drainage of marshes and orchards	Environmental crimes	Prepared and updated lectures	Quizzes, reports and discussions
15	2	Mass grave events and chronological classification	Mass grave crimes	Prepared and updated lectures	Quizzes, reports and discussions

## 2. Infrastructure

1. Required textbooks	A course for all public and private universities
2. Main references (sources)	
A. Recommended books and references (scientific journals, reports, 0000)	Knowledge Foundation for the Study of Baath Crimes in Iraq Written by Dr. Qais Nasser and Mr. Abdulhadi Matouk
B. Electronic References, Websites	

## 3. Course Development Plan

- 1- Update course vocabulary
- 2- Accreditation of main sources
- Suitability and compatibility of the theoretical aspect of the course with what the student actually needs with the required specialization

## Course Description 10

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

1.Educational institution	Southern Technical University / Basrah Technical Institute
2. Scientific Department / Center	Mechanical Techniques for Mechanical Lami
3. Course Name/Code	Calculator Apps 1 + Calculator Apps 2
Available Attendance Forms	Came
5. Semester/Year	First Semester + Second Semester 2023-2024
6. Number of credit hours (total)	
Date of preparation of this description	30 hours per class
<p style="text-align: center;"><b>8. Course Objectives</b></p> <p>1- Raising students' level of knowledge in computers and its applications.  2- Keeping pace with the development in the field of computer.  - Preparing efficient codification through the use of computers to increase the quality of technical and technical works in the field of specialization.</p>	

## 9. Course Outcomes and Methods of Teaching, Learning and Assessment

### A- Cognitive objectives

A1- Enriching computers with the latest information to keep pace with the rapid technical progress

A2- Preparing students to work efficiently with computer technologies and applications

A3- Providing the latest software necessary for the educational process and the practical side

### B. Program Skills Objectives

B1 – Preparing qualified and trained competencies by creating a stimulating environment for learning and creativity

B2 – Increasing the efficiency of students' use of modern technologies, which qualifies them to compete in the labor market strongly

B3 – Increase the efficiency of the work of the civil and technical through the use of the latest computer applications in all work

### Teaching and learning methods

Practical lectures: Using projectors to explain applications directly and in detail  
Carrying out practical exercises and testing students with them on a daily basis.  
Conducting practical exams on a weekly basis

### Evaluation methods

Daily exams

Weekly Exams

Participation during lectures

Daily attendance and commitment in the laboratory

Pursuit 50%

C- Emotional and value goals.

Focus: Developing and increasing students' efficiency in using computers and its applications

Response: Follow up the extent to which the student's skills develop with the subject and the level of its implementation

Attention: Follow up the interest of students with modern applications of computers

Directing students to deal with the latest applications and keep pace with them.



### Teaching and learning methods

Practical lectures: Using projectors to explain applications directly and in detail  
Carrying out practical exercises and testing students with them on a daily basis.  
Conducting practical exams on a weekly basis

### Evaluation methods

Daily exams  
Homework  
Weekly Exams  
Participation during lectures  
Daily attendance and commitment in the laboratory  
Pursuit 50%

d. General and rehabilitative skills transferred (other skills related to employability and personal development).

- 1 - Developing the student's ability to deal with modern computer applications
- 2- Keeping pace with the rapid development in the field of computers through the Internet
- Developing students' skills to deal with many applications and in all fields
- 4- Developing dialogue skills and putting forward new and creative ideas

### Infrastructure

#### 1. Required textbooks

Ministry of Higher Education and Scientific Research book for the course (Computer Basics and Office Applications, Part One + Two + Three + Four)

#### 2. Main References (Sources)

A. Books and references recommended by scientific journals, reports

B.

Electronic references, Internet  
sites

Week	Number of hours Required	learning outcomes	Name of unit course or subject	Teaching method	Evaluation method
1	2	introducing the student to opening the Excel 2010 program and using the program interface.	Learn about Excel 2010 and explain the program	Practical face-to-face lectures	Daily practical test
2	2	The student must be able to execute any command from the menus and their details.	interface Basic menus and explain the file menu	Practical face-to-face lectures	Lecture participation
3	2	The student must be able to execute any command from the main page and its details.	Home page explaining the clipboard and the font group and alignment and number	Practical face-to-face lectures	Homework
4	2	The student should be able to Implement the conditional formatting style set and format tables and cells	Conditional Formatting Styles Group and Formatting Tables and Cells	Practical in-person lectures	Daily practical test
5	2	The student should be able to Implement the cell group commands to delete columns, rows and cells and insert and format them	Cells Group Delete, Insert and Format Columns, Rows and Cells	Practical in-person lectures	Daily practical test
6	2	The student should be able to Implement the search, sort and replace edit group commands	Edit Group Search, Sort and Replace	Practical in-person lectures	Daily practical test
7	2	The student should be able to Implement the page layout tab commands, the format and page setup group	Page Layout Tab Page Setup and Format Group	Practical in-person lectures	Daily practical test
8	2	The student should be able to implement the sheet options group	Sheet Options Group	Practical in-person lectures	Participation in the lecture

9	2	The student should be able to implement the insert tab and the tables group	Insert Tab and Tables Group	Practical in-person lectures	Homework
10	2	The student should be able to Implement the illustrations group commands	Illustrations Group	Practical in-person lectures	<b>Participation in the lecture</b>
11	2	The student should be able to Implement the charts commands of all kinds	Charts Group	Practical in-person lectures	Participate in the lecture
12	2	The student should be able to Implement the text commands, their modifications and symbols	Text and Symbols Group	Practical in-person lectures	Homework
13	2	The student must be able to Execute function commands and formulas How to create conditions and get results	Formulas and Function Types	Practical in-person lectures	Participation in the lecture
14	2	The student must be able to Execute the if function and its importance in all specializations and deal with modifying data	Tab and Inserting Them Implementing the Simple and Compound If Function	Practical in-person lectures	Participate in the lecture
15	2	The student must understand the basics of dealing with networks and the Internet	Network and Internet Basics	Practical in-person lectures	Homework

## Courses for the second stage / first semester + second semester

### Course Description 1

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

1. Educational institution	Basrah Technical Institute
2. Scientific Department / Center	Department of Mechanical Techniques
3. Course Name/Code	Machinery Parts Technology1+ Machinery Parts Technology2
Available Attendance Forms	My attendance is only weekly
5. Semester/Year	annual
6. Number of credit hours (total)	3 hours per week total 90 hours
7. Date of preparation of this description	9/5/2024
8. Course Objectives	
Machine parts aim to clarify the role of mechanical parts in the machine system and the relationship that links these parts to each other and how to make some calculations to design these parts and neutralize all the factors affecting them	

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

A- Cognitive objectives

A1- Expanding the mental ability of the student to be able to find solutions to design mechanical parts 0

A2- The ability to perform calculations for various mechanical parts and transfer them to the ground 0

B. Program Skills Objectives

B1 - Adjusting the scientific aspects of machine parts

B2 – Providing students with the skills of solving scientific problems and through constructive discussions for better results.

Teaching and learning methods

1- How to give lectures 2- E-learning 3- Homework 4- Periodic reports

Evaluation methods

1- Continuing Education 2- Semester exams, mid-year exams and final exams0

C- Emotional and value goals.

C1- Identify the components of mechanical parts in detail.

C2- Expanding thinking and analysis skills in topics related to solving scientific problems.

C3- Preparing the student for a successful career in the engineering field.

Teaching and learning methods

Strategy according to the student's ability The strategy of critical thinking and brainstorming.

Evaluation methods

Exams, motivations, student feedback

d. General and rehabilitative skills transferred (other skills related to employability and personal development).

D1- Listening skills

D2. Discussion skills

D3- Using the virtual library and the Internet

### 1. Course Structure

The week	Hours	Required Learning Outcomes	Unit Name Subject	Method of education	Evaluation method
First	N3	Resistance of revised materials	Machinery Parts Technology	theoretical	
Second, third, fourth and fifth	N3	Types of weld-and-rivet fastened joints and their efficiency	Machinery Parts Technology	theoretical	
Sixth, seventh, eighth and ninth	N3	Types and connections threaded and with switches	Machinery Parts Technology	theoretical	
Tenth, eleventh, twelfth and twenty	N3	Types of frictional clutches, types of springs and their design	Machinery Parts Technology	theoretical	
Twenty-first, second, third and twenty-fourth	N3	Types of belts and transmission shafts	Machinery Parts Technology	theoretical	
Vocabulary of the second chapter					
Twenty-fifth, sixth, seventh, eighth and twenty-ninth	N3	Transmission gears types and design	Machinery Parts Technology	theoretical	
Xxx	N3	Final Exam			

### Infrastructure

1. Required textbooks	MACHINE DESIGN BY R.S.KHURMI AND J.K.GUPTA
2. Main references (sources)	MACHINE DESIGN BY R.S.KHURMI AND SHAH

A. Recommended books and references (scientific journals, reports)	Production Engineering and Machinery Parts Design Books
B. Electronic References, Websites	Modern Locations

### 3. Course Development Plan

Through the development of courses using modern scientific sources and more computer applications on mechanical parts and the preparation of cadres with a high degree of theoretical and practical understanding.

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

## Course Description 2

1. Educational institution	Southern Technical University / Basrah Technical Institute
Scientific Department / Center	Department of Mechanical Techniques / Production
Course Name/Code	Operation Process/Chapter 1
Available Attendance Forms	daily
Semester/Year	Quarterly system
Number of credit hours (total)	60 hours (theoretical + practical) per semester
Date of preparation of this description	2024
Course Objectives	
- Knowledge of general operating principles	



- Study the types of operation process, the foundations of operation and engineering tolerances.

- Knowledge of the equipment and devices used in the operations of the shine (turning, milling and others).

- Knowledge of metal work, cutting operations, characteristics of metal operations and number of pieces.

- Calculation of geometric tolerances, cutting forces and cutting time.

### **Course Outcomes and Methods of Teaching, Learning and Assessment**

A- Cognitive objectives

A1- Knowledge of the operating principles of metals.

A2- Knowing the properties of the materials to be operated.

A3- Knowledge of geometric tolerances and forces required for the formation process.

A4- Knowing the types of operating machines.

B - Skills objectives of the program.

B1 – The use of tools and devices used of various kinds in operations.

B2 – The methods used and methods used in the operations processes.

B3 – Testing metals suitable for the operation process.

### **Teaching and learning methods**

- Conducting practical experiments in laboratories and workshops and giving theoretical lectures.

- Scientific trips and field visits to work sites.

- Summer training and practical practice on the devices in government and private institutions.

### **Evaluation methods**

Semester and final exams.  
Daily short exams.  
Homework.  
Reports.  
- Interaction within the lecture.

C- Emotional and value goals.  
C1- Guiding the student on the correct educational dealing with professors.  
C2- Instilling the spirit of citizenship and cooperation among students .  
C3- Consolidating the principles of honesty and sincerity during work.  
C4- Developing the principle of teamwork among students.

### **Teaching and learning methods**

Continuous educational seminar .  
Guidance and follow-up lectures.  
Webinars and workshops .

### **Evaluation methods**

Continuous evaluation of the student's behavior during work.  
Direct discussion with students during lectures.  
Behavior change in some students and their follow-up

d. General and rehabilitative skills transferred (other skills related to employability and personal development).  
D1- Developing the student's ability to deal with technical means .  
D2- The student's ability to deal with the labor market.  
D3- Developing the student's ability to deal with the Internet.  
D4- Developing the student's ability to dialogue and discussion.

## Course Structure

The week	Hours	Required Learning Outcomes	Name of the unit/course or topic	Method of education	Evaluation method
<b>First Semester</b>					
First	2+2		Engineering tolerances, duplications, duplex systems, tolerance ranks, duplex units, basic deviations.	Theoretical + Practical	Theoretical and practical exams
Second	2+2		Types of tolerances, hole platform, column platform, duality symbols, tolerances for free dimensions, detailed dualities, choice of dualities and their economic advantages.	Theoretical + Practical	Theoretical and practical exams
Third	2+2		Metalworking, cutting processes, introduction to the theory of cutting of reeds and influencing factors, methods of fixing artifacts, including round and non-round, cutting borders used, and longitudinal feeding arrows and episodic.	Theoretical + Practical	Theoretical and practical exams
Fourth	2+2		Turning pens, identification of the types of angles of turning pens, the effect of turning pen angles on the cutting process, types of turning pens, cutting conditions, cutting elements, uses of cutting speeds, use of tables and speed maps, classification of cutting kit in terms of operating methods and number of cut-off limits.	Theoretical + Practical	Theoretical and practical exams
V	2+2		Cutting limit, emerging cutter limit and theory of its	Theoretical + Practical	Theoretical and practical exams

			composition, factors affecting it, factors that reduce its size, cooling and its importance for cutting processes, various coolants.		
Sixth	2+2		How to conduct the operating card for a group of operations and calculate its elements and feel the cutting time for each operation. How to take advantage of the sequence card to make the product path through the different units, factors affecting the selection of cutting speed, the effect of the properties of the cutting kit, the effect of the operating elements, the effect of the properties of the operator.	Theoretical + Practical	Theoretical and practical exams
Seventh	2+2		Tower turning machines, automatic, study of the processes that can be operated and analysis of operations on the product, types of tools used and arranged on the hexagonal, quadruple, front and rear head.	Theoretical + Practical	Theoretical and practical exams
Eighth	2+2		Milling, identifying the operations that can be carried out on the milling machines, the parts and components of the horizontal and vertical milling machines and the nature of the work of each part.	Theoretical + Practical	Theoretical and practical exams
Ninth	2+2		Machine accessories, partition heads, artifacts, mandrels and bushes.	Theoretical + Practical	Theoretical and practical exams

X	2+2		Accessories of milling machines, methods of fixing works (direct by clampers, indirect by types of liches and angles (methods of fixing knives, fixation with rotary lieutenants and fixed lieutenants).	Theoretical + Practical	Theoretical and practical exams
Eleventh	2+2		Splitting head device, division methods (direct, indirect, differential or differential, angle division), types of milling processes and products of each process.	Theoretical + Practical	Theoretical and practical exams
Twelfth	2+2		Calculations of milling time, calculation of milling time in the case of closed duct, open stream on one side, on two sides, calculation of milling time in case of using peripheral cuts.	Theoretical + Practical	Theoretical and practical exams
Thirteenth	2+2		Traditional machines in cutting: Electric spark cutting, ultrasonic cutting, process advantages and disadvantages, application and product limitations, cutting kit design, metal removal rate.	Theoretical + Practical	Theoretical and practical exams
Fourteenth	2+2		Electrochemical cutting of metals, advantages and disadvantages and products, design of the cutting kit, removal rate of metal.	Theoretical + Practical	Theoretical and practical exams
Fifteenth	2+2		Water jet cutting, laser cutting, advantages, disadvantages and products, cutting head design, study of variables for each method and their impact on removal	Theoretical + Practical	Theoretical and practical exams

		rate and accuracy.		
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## Infrastructure

1. Required textbooks	

### Course Description 3

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

1. Educational institution	Southern Technical University / Basrah Technical Institute
Scientific Department / Center	Department of Mechanical Techniques / Production
Course Name/Code	Forming Process/Chapter 2
Available Attendance Forms	daily
Semester/Year	Quarterly system
Number of credit hours (total)	60 hours (theoretical + practical) per semester
Date of preparation of this description	2024

## Course Objectives

- Knowledge of the general principles of formation
- Study the types of formation process, methods and foundations
- Know the advantages and disadvantages of formation of all kinds
- Know the types and properties of formable materials
- Calculation of the forces and work expended during the formation process

## Course Outcomes and Methods of Teaching, Learning and Assessment

### A- Cognitive objectives

- A1- Knowledge of the principles of forming for metals
- A2- Knowing the properties of the materials to be formed
- A3- Knowledge of the forces and work done for the formation process
- A4- Know the advantages and disadvantages of forming processes

### B. Program Skills Objectives

- B1 – The use of tools and devices used of various kinds in the formation processes
- B2 – Methods used and methods used in forming processes
- B3 – Testing of metals suitable for the forming process

### Teaching and learning methods

- Conducting practical experiments in laboratories and workshops and giving theoretical lectures
- Scientific trips and field visits to work sites
- Summer training and practical practice on devices in government and private institutions

### Evaluation methods

- Semester and final exams
- Daily short exams
- Homework

## Reports

- Interaction within the lecture

C- Emotional and value goals.

C1- Guiding the student on the correct educational dealing with professors.

C2- Instilling the spirit of citizenship and cooperation among students .

C3- Consolidating the principles of honesty and sincerity during work

C4- Developing the principle of teamwork among students

## Teaching and learning methods

Continuous educational seminar .

Guidance and follow-up lectures

Webinars and workshops

## Evaluation methods

Continuous evaluation of student behavior during school hours

Direct discussion with students during lectures

## Behavior change in some students and their follow-up

d. General and rehabilitative skills transferred (other skills related to employability and personal development).

D1- Developing the student's ability to deal with technical means .

D2- The student's ability to deal with the labor market.

D3- Developing the student's ability to deal with the Internet.

D4- Developing the student's ability to dialogue and discussion.

## Infrastructure

1. Required textbooks	
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## 2. Course Structure

The week	Hours	Required Learning Outcomes	Name of the unit/course or topic	Method of education	Evaluation method
<b>First Semester</b>					
First	2+2		<b>Metal Forming, Forming Theory, Foundations of Cold and Hot Forming</b>	Theoretical + Practical	Theoretical and practical exams
Second	2+2		Advantages and disadvantages of the forming process, properties of the material being formed	Theoretical + Practical	Theoretical and practical exams
Third	2+2		Conditions of the formation process, strain curve, yield point, plastic flow	Theoretical + Practical	Theoretical and practical exams
Fourth	2+2		Blacksmithing and forging, Blacksmithing equipment, Stables blacksmithing elements	Theoretical + Practical	Theoretical and practical exams
Fifth and sixth	4+4		Rolling process and its foundations, rolling methods and products, types of machines used	Theoretical + Practical	Theoretical and practical exams
Seventh and eighth	4+4		Extrusion Process, Extrusion Theory, Extrusion Process Products, Extrusion Types	Theoretical + Practical	Theoretical and practical exams
Ninth and tenth	4+4		Shearing and marbling, basics of shearing process, calculation of shear capacity, types of molds	Theoretical + Practical	Theoretical and practical exams
Eleventh	2+2		Pulling, Deep Draw, Principles of Pulling Process, Calculation of Pulling Force, Types of Pulling	Theoretical + Practical	Theoretical and practical exams
Twelfth	2+2		Unconventional methods of forming in metal formation, their advantages and types	Theoretical + Practical	Theoretical and practical exams
Thirteenth	2+2		Magnetic batch forming, types, advantages, disadvantages	Theoretical + Practical	Theoretical and practical exams
	2+2		Hydroelectric modulation,	Theoretical	Theoretical and

Fourteenth			advantages and characteristics of the process, formation with a charge of explosives, types, advantages and disadvantages	+ Practical	practical exams
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This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programmer.

### Course Description 4

Educational institution	Southern Technical University
Scientific Department / Center	Mechanical Technologies / Production Branch
Course Name/Code	Management and Occupational Safety
Available Attendance Forms	Theoretical lectures / case study for economic solutions
Semester/Year	First semester
Number of credit hours (total)	Two hours a week
Date of preparation of this description	12 / 5 / 2024
Course Objectives	
Full description of the definition of industrial management and quality control where the course interspersed industrial management, including factory sites and how to make productive decisions and address the costs and types and how to calculate wages The course also included industrial engineering therapeutic and preventive maintenance of production machines and occupational safety from	

risks and accidents on the defective product as the decision to include occupational safety and how to calculate injuries at work has also been taken the course material for statistical calculations of classified and non-classified data, including the arithmetic mean, median and mode And all specialized illustrative plans for work by monitoring the product to achieve the lowest costs, the highest quality and success of the industrial project and competition in the labor market.

## Course Outcomes and Methods of Teaching, Learning and Assessment

### A- Cognitive objectives

A1- Identifying the industrial project

A2. Decision Making

A3- Training and maintenance

A4-Statistics

A5- Occupational Safety

A6- Maintenance and training to reduce accidents

### B. Program Skills Objectives

B1 – The development of correct administrative scientific research

B2 – Technological development

B3 – Artificial Intelligence

B4- Case study to solve economic problems

### Teaching and learning methods

Evaluation methods The degree of the first semester The exam The first half of the first semester by (30) degrees with (10) student activity to be the pursuit of (40) degrees The final of the first semester by (60) degrees

### C- Emotional and value goals.

C1- Making the right decisions in the industrial project.

C2- Achieving profits and reducing losses.

C3- Creative scientific cognitive development by achieving a competitive product for the market.

C4- Training workers through maintenance of machines.

Teaching and learning methods Modern methods are considered one of the most important methods of learning and teaching The use of the model for data, field application and case study to solve industrial problems

Evaluation methods Conduct and teach the student to study the case and apply practical exercise to solve problems, find solutions and provide economic solutions to him.

d. General and rehabilitative skills transferred (other skills related to employability and personal development).

D1 - Scientific research.

D2- Practical application of problem solving.

D3- Innovation and creativity and the student's orientation to achieve them.

D4 - Completion of statistical skills.

## Course Structure

The week	Hours	Required Learning Outcomes	Name of the unit/course or topic	Method of education	Evaluation method
The first	Two hours	Making decisions to solve economic problems	Management / Industrial Management	Theoretical lectures	Problem solving by statistical practical application
Second	Two hours	Choosing a factory location	Decision making and its types	=	=
Third	Two hours	How to calculate break-even point costs	Costs	=	=
Fourth	Two hours	How wages are calculated	Wages / Halsey-Raun Method	=	=
V	Two hours	Purchase Account	purchases	=	=
Sixth	Two hours	Economic feasibility	Factors affecting production	=	=
Seventh	Two hours	Maintenance schedules	Maintenance	=	=
Eighth	Two hours	Therapeutic maintenance	Types of maintenance	=	=
Ninth	Two hours	Preventive Maintenance	=	=	=
X	Two hours	Maintenance & Production System	Maintenance & Training	=	=
Eleventh	Two hours	Production Planning	Types of production in terms of processes		=
Twelfth	Two hours	Production line	Production line efficiency	=	=
Thirteenth	Two	Planning	Types of		=

	hours	methods	methods		
Fourteenth	Two hours	=	Linear programming solution to the problem of transportation	=	=
Fifteenth	Two hours	Occupational Safety	Calculate the frequency and severity of the injury	=	=

### Infrastructure

1. Required textbooks	Industrial Management Book / Ahmed Ragheb Ahmed
2. Main references (sources)	Industrial Management and Occupational Safety Book / Haider Majid Muftah Engineer Tarek Mohamed Bilal
A. Recommended books and references (scientific journals, reports)	Japanese quality kaizen books and references
B. Electronic References, Websites	Prof. Dr. Kamel Mohamed Al-Maghrabi Strategic Management of Industry 2024 / Online

### Course Development Plan

Adding new topics related to sustainability, industrial strategy and industrial technology Artificial intelligence in the industrial project to reduce effort, the highest accuracy and the highest profit, as well as achieving economic, environmental and social sustainability is one of the most important goals of the industry and industrial decision makers, as the environment is one of the most important sources of production and preservation through sustainable industry and economic sustainability Achieving the industrial project at the lowest costs and the highest quality.

Developing methods of preventing accidents and using modern equipment to prevent injuries.

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

### Course Description 5

1. Educational institution	Southern Technical University
2. Scientific Department / Center	Mechanical Technologies / Production Branch Scientific Section
3. Course Name/Code	Management and Quality Control
Available Attendance Forms	Theoretical lectures / case study for economic solutions
5. Semester/Year	Second semester
6. Number of credit hours (total)	Two hours a week
7. Date of preparation of this description	12 / 5 / 2024
Course Objectives	
Full description of the definition of industrial management and quality control, where the course included industrial management, including factory sites and how to make productive decisions, and has included quality control of statistical	

accounts for classified and unclassified data, including the arithmetic mean, median, mode and all specialized illustrative charts to work by monitoring the product to achieve the lowest costs, the highest quality and success of the industrial project and competition in the labor market.  
Control schemes and control schemes to control the defective proportions of the industrial product.

## Course Outcomes and Methods of Teaching, Learning and Assessment

### A- Cognitive objectives

- A1- Identifying the industrial project
- A2. Decision Making
- A3- Identify the methods of quality control
- A4-Statistics
- A5- Quality control
- A6- Identify the defective in the product

### B. Program Skills Objectives

- B1 – The development of correct administrative scientific research
- B2 – Technological development
- B3 – Artificial Intelligence
- B4- Case study to solve economic problems Mapping with computer programs

### Teaching and learning methods

Evaluation methods The degree of the first semester The exam The first half of the first semester by (30) degrees with (10) student activity to be the pursuit of (40) degrees The final of the first semester by (60) degrees

### C- Emotional and value goals.

- C1- Making the right decisions in the industrial project.
- C2- Achieving profits and reducing losses.
- C3- Creative scientific cognitive development by achieving a competitive product for the market.
- C4- Quality control and production control.

Teaching and learning methods Modern methods are considered one of the most important methods of learning and teaching The use of the model for data, field application and case study to solve industrial problems

Evaluation methods Conduct and teach the student to study the case and apply practical exercise to solve problems, find solutions and provide economic solutions to him.



d. General and rehabilitative skills transferred (other skills related to employability and personal development).

D1- Scientific research.

D2- Practical application to solve problems.

D3- Innovation and creativity and the student's orientation to achieve them.

D4- Achievement of statistical skills

### Course Structure

The week	Hours	Required Learning Outcomes	Name of the unit/course or topic	Method of education	Evaluation method
The first	Two hours	Solutions to economic problems Definition of quality	Industrial quality and reduce defective in the product	Theoretical lectures	Problem solving by statistical practical application
Second	Two hours	Control schemes	Types of charts	=	=
Third	Two hours	Practical solutions	Cause and effect Ramblings Arithmetic mean chart	=	=
Fourth	Two hours	Specialist Data	Gated and unclassified	=	=
V	Two hours	Arithmetic mean Broker Lines	Quality Control Measures	=	=
Sixth	Two hours	Types of charts	Pareto Chart	=	=
Seventh	Two hours	=	Histogram	=	=
Eighth	Two hours	Types of maps	Range Map	=	=
Ninth	Two hours	=	Arithmetic mean map	=	=
X	Two	Schemes	Types of control	=	Tables and

	hours	defective in the product	schemes		drawings
Eleventh	Two hours	Arithmetic mean	Upper and central and lower limits		=
Twelfth	Two hours	Product defects	Monitoring Charts	=	=
Thirteenth	Two hours	=	Types of charts Arithmetic mean map		=
Fourteenth	Two hours	=	P-chart	=	=
Fifteenth	Two hours	Monitoring Charts	C-chart	=	=

#### Infrastructure

1. Required textbooks	Industrial Management Book / Quality Control Lectures Dr. Saad Sabr Mohammed
2. Main references (sources)	Industrial Management and Quality Control Book / Haider Majid Muftah Laith Fadel Sayed Hussein
A. Recommended books and references (scientific journals, reports, 0000)	Japanese quality kaizen books and references and production control schemes
B. Electronic References, Websites	Prof. Dr. Kamel Mohamed Al-Maghrabi Strategic Management of Industry 2024 / Online

#### Course Development Plan

Adding new topics related to sustainability, industrial strategy and industrial technology Artificial intelligence in the industrial project to reduce effort, the highest accuracy and the highest profit, as well as achieving economic, environmental and social sustainability is one of the most important goals of the industry and industrial decision makers, as the environment is one of the most important sources of production and preservation through sustainable industry and economic sustainability Achieving the industrial project at the lowest costs and the

highest quality.

Developing qualitative control methods by finding equations by modern computer methods in modern programs such as SPSS program for the accuracy of results. Quality control through the introduction of laboratory methods for the manufacture of the product in general for industrial products in particular, which the current industry tends to compete in the local market

## Course Description 6

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether he or she has made the most of the learning opportunities available. It must be linked to the programmer description.

1. Teaching Institution	Southern Technical University/Technical Institute - Basra
2. University Department/Centre	Department of Mechanical Technology/Production Mechanics
3. Course title/code	Metals 1 / Metals 2
4. Program(s) to which it contributes	
5. Modes of Attendance offered	Attendance
6. Semester/Year	First semester - second semester / 2023-2024
7. Number of hours tuition (total)	30 theoretical hours + 30 practical hours
8. Date of production/revision of this specification	8/5/2024
9. Aims of the Course	<p>enabling the student to become familiar with metallurgy, including the study of the properties of metals, their crystalline structure, their internal compositions, and methods of solidification, in addition to identifying the types of metal alloys and their various percentage compositions.</p> <ul style="list-style-type: none"><li>- Identify the thermal treatments performed on various metals and alloys.</li><li>- Identify types of corrosion and prevent them.</li><li>- Identifying modern types of surface treatments.</li><li>- Identifying nanomaterials as a modern science.</li></ul>

## 10· Learning Outcomes, Teaching ,Learning and Assessment Method

### A- Knowledge and Understanding

- A1 Knowledge of the principles of mineralogy.
- A2- Identify the tests that are performed on it.
- A3- Identify the types of alloys, their properties and uses.
- A4- Identifying thermal transactions and their benefits.
- A5- Identify the modern materials used in the industry.

### B. Subject-specific skills

- B1 Using laboratory equipment to conduct various tests on metals, such as hardness and impact tests.
- B2 - Examine the microscopic structures of metals and identify the types of phases in alloys.
- B3 - Identify the benefits and uses of nanomaterial in addition to the negatives of use.

### Teaching and Learning Methods

- Theoretical lectures.
- 2- Laboratory.
- 3- Systematic training.
- 4- Workshops.

### Assessment methods

- Daily tests.
- Homework.
- Evaluating student behavior.
- Live discussions during the lecture.
- Mid-term exams and final exam for each semester.

- Commitment to lectures in terms of attendance and lecture times

### C. Thinking Skills

C1- Facilitating understanding and dealing with thermal balance diagrams.

C2- Students' interaction and understanding of the presented diagrams.

C3- Students' response and interaction with the presented curriculum it

### Teaching and Learning Methods

In addition to the scheduled lectures, there are other methods used by the teacher, which are:

1- Guidance and awareness lectures.

2- Educational lectures.

3- Electronic seminars and workshops.

### Assessment methods

- Written tests.

2- Quarterly exams.

3- Final exams.

4- Daily evaluation

### D. General and Transferable Skills (other skills relevant to employability and personal development)

D1.- Developing the student's ability to deal with technical means.

D2- Developing the ability to deal with the labor market.

D3- Knowledge of dealing with the Internet.

D4- Developing the student's ability to dialogue and discuss.

## 11. Course Structure

### First semester

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	A 2 theoretical + 2 practical	The student is familiar with mineralogy, the formation of crystallization nuclei and dendritic arms  Identifying	Introduction to mineralogy, crystallization, and the effect of crystallization rate	Theoretical + practical	Discussion + laboratory reports
2	A 2 theoretical + 2 practical	Identifying defects in castings of all kinds	Installation of metal blocks and their disadvantages	Theoretical + practical	Daily tests + laboratory reports
3	A 2 theoretical + 2 practical	Know the number of active atoms	Atomic crowding coefficient, trends and crystallographic levels	Theoretical + practical	Daily tests + laboratory reports
4	A 2 theoretical + 2 practical	Familiarity with crystal defects	Defects of crystal lattices	Theoretical + practical	Discussion + laboratory reports
5	A 2 theoretical + 2	Learn about elastic forming and its	elastic and plastic forming	Theoretical + practical	Daily tests + laboratory

	practical	applications and plastic forming and its applications			reports
6	A 2 theoretical + 2 practical	Knowing emotional rigidity, its defects, and treating it	Strain hardening and cold and hot forming	Theoretical + practical	Discussion + laboratory reports
7	A 2 theoretical + 2 practical	Knowing how crystal growth begins from the nucleus and the convergence of the dendritic arms	Recovery, recrystallization and crystal growth	Theoretical + practical	Discussion + laboratory reports
8	A 2 theoretical + 2 practical	Learn how to create a stress-strain curve and calculate the modulus of elasticity from it	Stress-strain curves and types of fracture	Theoretical + practical	Discussion + laboratory reports
9	A 2 theoretical + 2 practical	Identify the causes and causes of fatigue	Fatigue and fatigue resistant materials	Theoretical + practical	Daily tests + laboratory reports
10	A 2 theoretical + 2	Identify the creep curve, its stages, and	Creep and its mechanism	Theoretical + practical	Discussion + laboratory

	practical	how it occurs			reports
11	A 2 theoretical + 2 practical	The student's knowledge and distinction between compounds, phases, and solid solutions	Compound, phase, solid solution, equilibrium, alloy formation	Theoretical + p Ractical	Discussion + 1 laboratory reports
12	A 2 theoretical + 2 practical	Identify diagrams, methods of creating them, and calculating solid and liquid phases	Thermal equilibrium diagram for a completely dissolved binary system in the liquid and solid states and the eutectic diagram	Theoretical + practical	Daily tests + laboratory reports
13	A 2 theoretical + 2 practical	Identify diagrams, methods of creating them, and calculating solid and liquid phases	Thermal equilibrium diagram for a binary system that has complete solvation in the liquid state and limited solvation in the solid state	Theoretical + practical	Daily tests + laboratory reports
14	A 2	Identify	Thermal	Theoretical	Daily tests



	theoretical + 2 practical	diagrams, methods of creating them, and calculating solid and liquid phases	equilibrium diagram for a binary system that is completely dissolved in the liquid state and a chemical compound is in the frozen state	+ practical	+ laboratory reports
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15	A 2 theoretical + 2 practical	Identify the plan, its stages, and the features of each stage	Iron, thermal equilibrium diagram of the iron-carbon system	Theoretical + practical	Discussion + laboratory reports
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**Second semester**

<b>Week</b>	<b>Hours</b>	<b>ILOs</b>	<b>Unit/Module or Topic Title</b>	<b>Teaching Method</b>	<b>Assessment Method</b>
1	A 2 theoretical + 2 practical	Identify the plan, its stages, and the features of each stage	Completion of the carbon neutralization chart	Theoretical + practical	Discussion + laboratory reports
2	A 2 theoretical + 2	Study of the formation of austenite and its	Formation of austenite and transformation mechanism of	Theoretical + practical	Daily tests + laboratory

	practical	transformation into pearlite	perlite		reports
3	A 2 theoretical + 2 practical	temperature and cooling speed on the transformation of austenite	Austenite transformations	Theoretical + practical	Daily tests + laboratory reports
4	A 2 theoretical + 2 practical	Know the effect of Identify the types of thermal transactions	Thermal transactions	Theoretical + practical	Discussion + laboratory reports
5	A 2 theoretical + 2 practical	Identify the types of thermal transactions	Complement of thermal coefficients and sub-zero treatments	Theoretical + practical	Daily tests + laboratory reports
6	A 2 theoretical + 2 practical	Identify surface hardening represented by carburizing and nitriding	Surface hardening	Theoretical + practical	Discussion + laboratory reports
7	A 2 theoretical + 2 practical	Identify the effect of adding alloying elements to steel	Alloy steel	Theoretical + practical	Discussion + laboratory reports
8	A 2 theoretical	Familiarity with its	Stainless steel	Theoretical	Discussion +

	+ 2 practical	properties and uses		+ practical	laboratory reports
9	A 2 theoretical + 2 practical	Identify the types of cast iron and their uses	Cast iron	Theoretical + practical	Daily tests + laboratory reports
10	A 2 theoretical + 2 practical	Identify the types of cast iron and their uses	Cast iron supplement	Theoretical + practical	Discussion + laboratory reports
11	A 2 theoretical + 2 practical	Identify the types of corrosion and ways to prevent it	Corrosion	Theoretical + practical	Discussion + 1 laboratory reports
12	A 2 theoretical + 2 practical	Identify the types of corrosion and ways to prevent it	Cavernous and galvanic corrosion	Theoretical + practical	Daily tests + laboratory reports
13	A 2 theoretical + 2 practical	Softening the atmosphere for the purpose of reducing corrosion	Ocean softening and corrosion prevention	Theoretical + practical	Daily tests + laboratory reports
14	A 2 theoretical + 2	Learn about the uses of laser, plasma, and	Surface treatments using modern	Theoretical + practical	Daily tests + laboratory

	practical	nanotechnology	technologies		reports
15	A 2 theoretical + 2 practical	Learn about its types, uses and disadvantages	Introduction to nanomaterial	Theoretical + practical	Discussion + laboratory reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Principles of metallurgical engineering by Dr. Hussein Baqir Rahmat Alla.  Mineralogy by Dr. Imad Muhammad Ibrahim Khalil
Special requirements (include for example workshops, periodicals, IT software, websites)	Engineering materials 1 Nanotechnologies principles, applications
Community-based facilities (include for example, guest Lectures , internship , field studies)	Northern Technical University / Mosul Technical Institute University of Technology/Materials Engineering

13. Admissions	
Pre-requisites	
Minimum number of students	30
Maximum number of students	200

## Course Description 7

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

Educational institution	Southern Technical University
Scientific Department / Center	Department of Mechanical Technologies
Course Name/Code	IndustrialDrawing Material 1 + IndustrialDrawing 2
Available Attendance Forms	Came
Semester/Year	First +Second 2023/2024
Number of credit hours (total)	45hours per class
Date of preparation of this description	2024/5/7
Course Objectives	
1- Know how to deal with the computer drawing program (AutoCAD).	
2- Know the standard specifications.	
3- Knowledge of engineering symbols and terms.	
4- Acquire the necessary skill to read technical drawings.	
5- Drawing simple and complex mechanical parts and the most encountered in practical life.	

Course Outcomes and Methods of Teaching, Learning and Assessment

A- Cognitive objectives

A1- The graduate's ability to read engineering plans.

A2- The ability to know the mechanical parts and methods of assembly.

A3- The ability to convert these parts into a product by reading and analyzing drawings.

A4- Knowing the types of metals from which these parts are produced.

A5- Knowing the engineering permits that must exist between the mechanical parts in order to work in an engineering manner

A6- The ability to assemble parts after manufacturing.

B. Program Skills Objectives

B1 – The ability to divide and assemble engineering equipment.

B2 – The ability to draw all parts of machinery and equipment.

B3 – Engineering discussions and opinion.

B4- Assist in finding solutions and propose appropriate alternatives.

Teaching and learning methods

Lectures that include a theoretical aspect on the subject and the implementation of drawings about it according to the vocabulary of the curriculum.

With watching pre-prepared illustrations on each topic and displaying pictures of the equipment to be implemented as a drawing.

Evaluation methods

Implementation of daily computer drawings and daily evaluation in addition to the scheduled exams.

C- Emotional and value goals.

C1- Communication skills and information technology.

C2- Possess skill in knowing the engineering symbols of mechanical drawing and international standard ratios.

C3- Knowledge of the special laws for the design of gears of various kinds.

C4- The skill of dealing with all drawing programs (AutoCAD).

Teaching and learning methods

Evaluation methods

Implementation of daily drawings in addition to the semi-semester and final exam in addition to theoretical research on curriculum topics.

d. General and rehabilitative skills transferred (other skills related to employability and personal development).

D1- The ability to absorb information and understand the symbols of the subject.

D2- The ability to carry out any mechanical drawing of any equipment.

D3- The ability to make a decision through the information he possesses about the mechanical drawing.

D4- Preparing a technical staff with the ability to deal with all mechanical drawings by reading and implementing them

### 1. Course Structure

The week	Hours	Required Learning Outcomes	Name of the unit/course or topic	Method of education	Evaluation method
1	3	The student should be able to know the types of geometric lines - projections of sections - dimensional mode using the computer	General review of the topics of the first grade lines 0dimensions - projections - sections using AutoCAD program	Practical application of computer drawing	Panel implementation
2+3	3	The student should be able to know the methods of fastening using spirals and nuts	Connecting methods using spirals and nuts	Computer painting drawing	Implementation of the painting by students
4+5	3	The student should be able to know the methods of linking by means of links and their types	Throwing by means of all kinds and uses	Practical application in the computer	Panel implementation
6+7	3	The student should be able to know the binding by welding welding codes	Bonding by welding and welding codes	Drawing a computer board in front of students	Panel execution
8+9	3	The student should be	Binding with rivets and	Drawing a computer board	Panel execution



		able to know the binding to the rivet with the shapes of rivets and the types of fastening	forms of rivets and types of binding	in front of students	
10	3	The student should be able to know how to split and assemble a mechanical crane.	Segmentation and assembly of mechanical crane	Drawing a computer board in front of students	Panel execution
11	3	The student should be able to know the types of springs and their uses	Springs, types and uses	Drawing a computer board in front of the students for a compression spring	Panel execution
12	3	The student should be able to know how to split and assemble the exhaust valve	Exhaust valve segmentation and assembly	Implementation of the painting in front of students	Panel execution
13	3	The student should be able to know the connections of the coupling columns and their types	Couplings, their types and uses	Implementation of the painting in front of the students for a rigid coupling	Implementation of the painting by students

14	3	The student should be able to know the types of clutches and their uses	Types of clutches and their uses	Implementation of the painting in front of students	Implementation of the painting by students
15	3	The student should be able to know the types of loading chairs	Types of loading chairs	Implementation of the painting in front of students for a frictional loading chair	Implementation of the painting by students
Course structure for the second semester					
1	3	The student should be able to know the types of pulleys and belts and their uses	Types of pulleys and belts and their uses	Implementation of the board in front of the students contains the assembly of parts containing a pulley	Implementation of the painting by students
2+3	3	The student should be able to know the types of gears and their laws.	Fair gears, their laws and uses	Executing a board for a gear of justice installed on a shift using a key in front of students	Implementation of the painting by students

4+5	3	The student should be able to know the bevel gears and their uses	Bevel gears and their uses	Implementation of a collective drawing of a conical gear interleaved and fixed on the lips in front of the students	Implementation of the painting by students
6+7	3	The student should be able to know the Autodesk Enivor program	Introduction to Autodesk Ennifor	Explanation of the program and how to use	
8+9	3	The student should be able to know the environment of two-dimensional drawing	Two-dimensional drawing environment	Explain the subject with drawing a painting	Implementation of the painting by students
10+11		The student should be able to know the assembly environment of the equipment	Knowledge of the assembly environment of the equipment	Explanation of the subject with drawing an assembly board	Implementation of the painting by students
12	3	The student should be able to know the environment of mechanical analysis and movement	Mechanical Analysis and Movement Environment	Explanation of the subject with an assembly drawing of a machine containing moving parts	Implementation of the painting by students

13	3	The student should be able to know the environment of additions to the graphics	Additions to mechanical drawings	Executing a drawing containing additions in front of students	Implementation of the painting by students
14+15	3	Competence Project	Distributing projects to students with an explanation of each project	Explain the details of each project to the groups	Project Implementation

1. Required textbooks	Mechanical Drawing /Machinery Drawing / Industrial Drawing Binding
2. Main references (sources)	Engineering drawing –machine drawing
A. Recommended books and references (scientific journals, reports, 0000)	<b>Engineering drawing –machine drawing</b>
B. Electronic References, Websites	My lectures on the channel