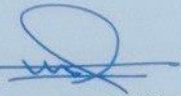


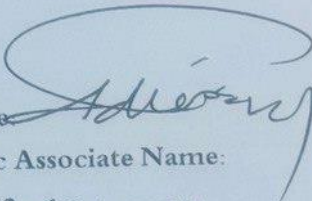
Republic of Iraq  
Ministry of Higher Education & Scientific Research  
Supervision and Scientific Evaluation Directorate  
Quality Assurance and Academic Accreditation

### Academic Program Description Form

University Name: Middle Technical University  
Faculty/Institute: Kut Technical Institute  
Scientific Department: Department of Building and Construction Techniques  
Academic or Professional Program Name: Civil Technologies  
Final Certificate Name: Technical Diploma  
Academic System: Yearly + Semester  
Description Preparation Date: 2023/10/5  
File Completion Date: 2024\2\11

Signature: 

Head of Department Name: Hussein Al-Humairi  
Date: 12-3-2024


Signature: 


Scientific Associate Name:  
Date: 12/3/2024

The file is checked by:

Department of Quality Assurance and University Performance  
Director of the Quality Assurance and University Performance Department:

Date: 12-3-2024

Signature: 

13/3   
Approval of the Dean

الاستاذ الدكتور  
مبارك فرحان بليسا  
عميد المعهد التقني، كوت

## **1. Program Vision**

- 1.The Department of Civil Technology is one of the main technological departments and the department aspires to expand the base of technical education and its modern applications to be a pioneer in providing contemporary technical services based on the spirit of competition and cooperation with everyone to serve and develop society.
2. Upgrading to a distinguished and renewed department in the education and training of all civil technologies at a high level of quality that contributes to the rehabilitation of highly qualified national human cadres.
3. Ambition to be a pioneer in providing educational and specialized programs in the field of civil technologies and to be a role model.

## **2. Program Mission**

1. The mission of the department is to graduate national technical cadres at a high level of education and training to be able to absorb modern technology systems and support the process of technical development to keep pace with rapid global technical developments through:
2. The use of computer and Internet technologies in education and training.
3. Activating the relationship with the public and private sectors in the fields of training.
4. Follow up the development of the curricula of the training plans and then update the laboratories and workshops.
5. Interaction with the labor market and the needs of society in the rehabilitation and training of students.

### 3. Program Objectives

- 1- The graduates of the Building and Construction Techniques Department should possess a comprehensive knowledge of the basics of concrete technology.
- 2- Providing the labor market with technicians who have the ability to apply methods of design, management and construction in engineering projects.
- 3- The graduates should have the ability to acquire communication skills and teamwork in multidisciplinary projects.
- 4- Providing technicians with the ability to continue learning and acquire skills to develop creative professional performance and plan work based on community values and professional ethics.
- 5- Maintaining abreast of the latest developments in the field of civil engineering, by re-evaluating the study plans and curricula offered on a regular basis.

### 4. Program Accreditation

governmental

### 5. Other external influences

Courses / scientific conferences / research

### 6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements	<b>28</b>	<b>124</b>	<b>100%</b>	<b>basic</b>
Summer Training	<b>exist</b>			
Other				

## 7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	Practical
2023-2024				
<b>1<sup>st</sup> course</b>	C1-1	Construction Materials	2	2
<b>First stage</b>	C1-2	Engineering Mechanics	2	1
	C1-3	Surveying (1)	2	2
	C1-4	Technical English Language	2	-
	C1-5	Mathematics	2	-
	C1-6	Computer Application (1)	1	2
	C1-7	Engineering Drawing	-	6
	C1-8	Workshop	-	3
	C1-9	Human Rights	2	-

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	Practical
2023-2024				
<b>2<sup>nd</sup> course</b>	C1-1	Construction Materials	2	2
<b>First stage</b>	C1-2	materials resistance	2	1
	C1-3	Surveying (1)	2	2
	C1-4	Arabic Language	2	-
	C1-5	Mathematics	2	-
	C1-6	Computer Application (1)	1	2
	C1-7	Engineering Drawing	-	6
	C1-8	Civil Workshops	-	3
	C1-9	Democracy	2	-



Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	Practical
2023–2024				
<b>Second stage</b>	C2-1	Concrete Technology	2	2
	C2 -2	Technology of Construction	-	4
	C2 -3	Soil Mechanics	2	2
	C2 -4	Civil Drawing	1	5
	C2 -5	Surveying2	1	2
	C2 -6	Building and Fabricated Building	2	-
	C2 -7	Computer Application	1	2
	C2 -8	Construction Equipment's	2	1
	C2 -9	Quantity Surveying	2	-
	C2-10	Project	-	2

### 8. Expected learning outcomes of the program

#### Knowledge

A1– The ability to engineering analysis and scientific thinking through the application of laws in science, mathematics and engineering and adherence to the guidelines and instructions for any effectiveness in the organizational and administrative framework in implementing a project or facing an engineering problem, solving and evaluating it, submitting a proposal or plan, reformulating, translating or interpreting it.

A2–Preparing the student to continue self–learning and acquiring new techniques and skills in the field of engineering.

A3– To be familiar with international civil engineering standards, estimate market needs, apply quality management concepts in engineering work, and acquire skills in information technology.

A4– To be able to work in different work environments.

#### Skills

B1 – Discussion and dialogue.

B2 – Cooperative learning by working collectively

B3 – The ability to apply civil engineering techniques taking into account industrial, construction and commercial constraints.

B4– The ability to select and conduct the required tests and collect, compare and analyze the results of the tests.

## **Ethics**

- C1- Data collection and analysis
- C2- Cooperative Learning
- C3- Presenting the engineering problem or design and asking to think about possible solutions or developments.
- C4- Developing research skills in the Internet to expand the knowledge horizon.

## **9. Teaching and Learning Strategies**

- 1- Providing the student with self-learning skills through the nature of vocabulary, curricula and approved teaching methods
- 2- Encouraging students to work as teams within practical projects that reflect the life reality of society and its problems
- 3- Encouraging students to enter and participate in competitions, seminars and conferences that develop and develop their research ability and self-confidence for self-learning.

## **10. Evaluation methods**

- 1- Follow-up and discussion of graduation projects
- 2- Follow up the performance of students in engineering workshops
- 3- Summer Training Program Completion Reports

## 11. Faculty

### Faculty Members

Academic Rank	Specialization		Special Requirements/ Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
teacher	Civil Engineering	Environmental Management & Planning			Staff	
Assistant Professor	Civil Engineering	Environmental Engineering			Staff	
Assistant Professor	Civil Engineering	Environmental Engineering				Lecturer
teacher	Civil Engineering	Water Resources			Staff	
teacher	Mechanical Engineering	Mechanical Engineering			Staff	
Assistant Lecturer	Surveying Engineering	Surveying Engineering			Staff	
Assistant Lecturer	Civil Engineering	Soil mechanics and foundations			Staff	
Assistant Lecturer	Civil Engineering	Water Resources			Staff	
Assistant Lecturer	Civil Engineering	Water & Environment			Staff	
Assistant Lecturer	Political science	Political science				Lecturer

### Professional Development

#### Mentoring new faculty members

1. Recognize the University, including: the University's vision, mission, values, objectives, development programs, projects and key services available.
2. Study the concept of what it means to be a faculty member at the Central Technical University, including the basic characteristics and values, and responsibilities related to rights, performance and accountability as a faculty member
3. Develop the necessary skills and ability to design and manage the comprehensive educational

process in the fields of teaching, learning, research, innovation, leadership and community service

### **Professional development of faculty members**

Teachers are trained by involving them in teaching methods courses held at the Continuing Education Center, as well as through seminars and educational workshops held at the department level, which are subject to discussion, which helps in refining the personality of the teacher and helping him manage the discussion, defense and start opinion.

## **12. Acceptance Criterion**

**(The Department of Building and Construction Engineering Techniques is subject to the mechanism of work of the Ministry of Higher Education and Scientific Research – Central Admission Department, where graduates of preparatory school and industry are nominated for admission to the department based on averages.**

## **13. The most important sources of information about the program**

1. Curriculum.
2. Professors' lectures.
3. Websites on the Internet
4. The use of modern scientific platforms in e-learning and the use of classroom and cockle met.
5. Description of the courses attached with the description of the academic program.

#### 14. Program Development Plan

1. Providing the student with self-learning skills through the nature of vocabulary, curricula and approved teaching methods
2. Encouraging students to work as teams within practical projects that reflect the reality of the life of society and its problems
3. Encouraging students to enter and participate in competitions, seminars and conferences, which develop and develop their research ability and self-confidence on self-learning.

### Program Skills Outline

				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
<b>2023\2024</b> <b>1<sup>st</sup> course</b>	C1-1	Construction Materials	Basic	\	\		\			\		\			
	C1-2	Engineering Mechanics	Basic	\	\	\	\			\			\		
<b>First stage</b>	C1-3	Surveying (1)	Basic	\	\					\		\		\	
	C1-4	Technical English Language	Basic	\				\							
	C1-5	Mathematics	Basic	\	\		\			\	\	\		\	
	C1-6	Computer Application (1)	Basic	\			\			\	\	\			\
	C1-7	Engineering Drawing	Basic				\		\	\		\			
	C1-8	Workshop	Basic		\		\			\	\		\		
	C1-9	Human Rights	Basic				\					\			



Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
2023\2024 2 <sup>nd</sup> course	C1-1	Construction Materials	Basic	\	\		\			\		\			
	C1-2	materials resistance	Basic	\	\	\	\			\			\		
First stage	C1-3	Surveying (1)	Basic	\	\						\	\		\	
	C1-4	Arabic Language	Basic	\				\							
	C1-5	Mathematics	Basic	\	\		\			\	\	\		\	
	C1-6	Computer Application (1)	Basic	\			\			\	\	\		\	
	C1-7	Engineering Drawing	Basic				\		\	\		\			
	C1-8	Civil Workshops	Basic		\		\			\	\		\		
	C1-9	Democracy	Basic									\			

				Required program Learning outcomes													
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics					
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4		
2023\2024	C2-1	Concrete Technology	Basic	\									\				
	C2 -2	Technology of Construction	Basic	\						\			\				
Second stage	C2 -3	Soil Mechanics	Basic	\							\		\				
	C2 -4	Civil Drawing	Basic		\			\						\			
	C2 -5	Surveying2	Basic		\			\						\			
	C2 -6	Building and Fabricated Building	Basic	\					\					\			
	C2 -7	Computer Application	Basic		\			\					\				
	C2 -8	Construction Equipment's	Basic	\				\					\				
	C2 -9	Quantity Surveying	Basic	\				\					\				
	C2-10	Project	Basic		\			\						\			

## Course Description Form

<b>1. Course Name</b>	
Construction Materials	
<b>2. Course Code</b>	
C1-1	
<b>3. Term /Year</b>	
The First course for the academic year 2023/2024	
<b>4. Date this description was prepared</b>	
17/2/2024	
<b>5. A. Available Attendance Forms</b>	
In-Person	
<b>6. Number of study hours (total)/number of units (total)</b>	
(2 theoretical + 2 practical ) by ( 4 ) hours per week = 120 total hours	
<b>7. Course Admin Name</b>	
Name: Alaa Humeed Abdullah                      Email : hameedalaa095@gmail.com	
<b>8. Course objectives:</b>	
<b>Objectives of the course</b>	<ul style="list-style-type: none"> <li>• <b>Introducing the student to the properties of the construction materials and the methods of their production</b></li> <li>• <b>Introducing the student to modern alternatives that currently exist and modern methods of production.</b></li> <li>• <b>Qualifying the student to carry out standard tests to find out the extent to which the construction materials conform to the specifications and determine the possibility of using them in construction, which ensures strength, safety and economy.</b></li> </ul>
<b>9. TEACHING AND LEARNING STRATEGIES</b>	
<b>Strategy</b>	<p><b>Identify the basic concepts of construction materials.</b></p> <ul style="list-style-type: none"> <li>• <b>Expanding students' perceptions and enhancing the concept of construction materials by giving them general principles and concepts about construction materials, their types, destructive and non-destructive examination methods through knowledge of the site and the quality of origin.</b></li> <li>• <b>Giving the student experience in choosing the appropriate type of construction material and choosing the appropriate examination method for it.</b></li> <li>• <b>Identifies the Iraqi specifications for construction materials and methods of</b></li> </ul>

estimating the quantities of materials necessary for the construction work.

## 10. Course Structure

Week	Hours	Intended Learning Outcomes	Unit or Topic Name	Learning method	Valuation Method
First	2T + 2P	Student understands the lesson	A general description of the physical properties and standard specifications of building materials and their uses in buildings.	Lecture Theory + visit to the construction materials laboratory	Discussion
Second	2T + 2P	Student understands the lesson	Clay bricks: their properties, uses and methods of manufacture.	Theoretical lecture and implementation of brick tests experiment – density, specific weight	Discussion, Quick Quiz, Homework and Lab Report
Third	2T + 2P	Student understands the lesson	Specifications of clay bricks, inspections of clay bricks.	Theoretical lecture and implementation of the experiment of brick tests_absorption, 1/2 hour, 24 hours, flowering	Discussion, Quick Quiz, Homework and Lab Report

<b>Fourth</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Limestone bricks Glass bricks, properties and methods of manufacture.</b>	<b>Theoretical lecture and implementation of brick tests experiments: compressive strength and dissolved salts</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>
<b>Fifth</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Concrete bricks – concrete blocks (properties and method of manufacture with clarification of the difference between the two).</b>	<b>Theoretical lecture and implementation of concrete brick tests: absorption density, dissolved salts</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>
<b>Sixth</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Thermostone, its properties, and methods of making it.</b>	<b>Theoretical lecture and implementation of concrete block tests: absorption density, dissolved salts</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>
<b>Seventh</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>A visit to the brick factory</b>	<b>Discuss the visit to the brick factory.</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>

<b>Eighth</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Building stone – classification and types, uses of building stone according to its types.</b>	<b>Theoretical lecture and implementation of the tests of limestone bricks, absorption density and compressive strength</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>
<b>Ninth</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Portland cement, its manufacture, chemical composition, types and specifications.</b>	<b>Theoretical lecture and implementation of the tests of thermiston, density, absorption, compressive strength</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>
<b>Tenth</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Concrete pipes, their manufacture, specifications, and use in construction purposes.</b>	<b>Theoretical lecture with a visit to the construction materials testing laboratory</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>
<b>Eleventh</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Concrete slabs, their types, specifications, and use in structural purposes</b>	<b>Theoretical lecture and implementation of standard tests for concrete slabs, including: absorption and salts</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>



Twelveth	2T + 2P	Student understands the lesson	Structural steel, its specifications, types, and uses.	Lecture Theory and Execution of Concrete Slab Inspection Experiment: Compaction and Fracture Criteria	Discussion, Quick Quiz, Homework and Lab Report
Thirteen	2T + 2P	Student understands the lesson	Steel details, welding, bolts, rivets, and their uses.	Theoretical lecture and implementation of the experiment of examining stones, examining the absorption of some types of available stones	Discussion, Quick Quiz, Homework and Lab Report
fourteenth	2T + 2P	Student understands the lesson	Visiting the two sites to see structural steel, its types, steel connections, rivets, welds and bolts.	Lecture Theory and Execution of Steel Checks Experiment, Tensile Examination	Discussion, Quick Quiz, Homework and Lab Report

fifteenth	2T + 2P	Student understands the lesson	Environmentally friendly building materials.	Lecture on the theory of identification of some materials used in the production and manufacture of environmentally friendly building materials	Discussion, Quick Quiz, Homework and Lab Report
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### 11. Course Evaluation

The evaluation is based on:

1. Midterm Exam ( 20% Theoretical + 10% Practical )
3. The work of the year (10% ) shall be taken into account attendance and participation .
4. Final exam ( 40% N + 10% N ) first round and second round.

### 12. Learning and Teaching Resources

Required textbooks (methodology if any)	
Key References (Sources)	Building Construction Book/ Zuhair Sako + Artin Levon
Recommended supporting books and references (scientific journals, reports... )	All discreet scientific journals related to construction materials
E-References, Websites	<ul style="list-style-type: none"> <li>• Book of Building Materials and Raw Materials Used in Construction</li> <li>• Asphalt/Electronic Technology</li> </ul>



## Course Description Form

1. Course Name

Construction Materials

2. Course Code

C2-2

3. Term /Year

The second course for the academic year 2023/2024

4. Date this description was prepared

17/2/2024

5. A. Available Attendance Forms

In-Person

6. Number of study hours (total)/number of units (total)

(2 theoretical + 2 practical ) by ( 4) hours per week = 120 total hours

7. Course Admin Name

Name: Alaa Humeed Abdullah

Email : hameedalaa095@gmail.com

8. Course objectives:

Objectives of the course

- Introducing the student to the properties of the construction materials and the methods of their production
- Introducing the student to modern alternatives that currently exist and modern methods of production.
- Qualifying the student to carry out standard tests to find out the extent to which the construction materials conform to the specifications and determine the possibility of using them in construction, which ensures strength, safety and economy.

9. TEACHING AND LEARNING STRATEGIES

Strategy

- Identify the basic concepts of construction materials.
- Expanding students' perceptions and enhancing the concept of construction materials by giving them general principles and concepts about construction materials, their types, destructive and non-destructive examination methods through knowledge of the site and the quality of origin.
- Giving the student experience in choosing the appropriate type of construction material and choosing the appropriate examination method for it.
- Identifies the Iraqi specifications for construction materials and methods of estimation

the quantities of materials necessary for the construction work.

## 10. Course Structure

Week	Hours	Intended Learning Outcomes	Unit or Topic Name	Learning method	Valuation Method
First	2T + 2P	Student understands the lesson	Binders and their types, moisture-resistant binders (grout) properties and workmanship.	Theoretical lecture and implementation of testing experiment of moisture-resistant binders, plaster, standard texture, hardening time	Discussion, Quick Quiz, Homework and Lab Report
Second	2T + 2P	Student understands the lesson	Materials that resist moisture ( cement mortar , cement mortar Nora), Nora , its method of manufacture, its properties	Theoretical lecture and implementation of plaster softness examination experiment , tensile strength and durability of plaster	Discussion, Quick Quiz, Homework and Lab Report

Third	2T + 2P	Student understands the lesson	Gypsum products, their types , properties, secondary ceiling materials and types.	Theoretical Lecture and Implementation of Standard Examinations Experiment for Alkashi, Pressure Examination and Refractive Criteria for Alkashi and Concrete Slabs	Discussion, Quick Quiz, Homework and Lab Report
Fourth	2T + 2P	Student understands the lesson	Application materials, kashi, slabs and their types, methods of manufacture, method of application, joints	A theoretical lecture and introducing the student to the standard specifications for examining moisture-proof materials	Discussion, Quick Quiz, Homework and Lab Report
Fifth	2T + 2P	Student understands the lesson	Wood origin, types used, methods of use, methods of drying wood and defects of wood.	Theoretical lecture and implementation of the examination of vertical and parallel pressure of wood fibers	Discussion, Quick Quiz, Homework and Lab Report



<b>Sixth</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Metals ( ferrous and non-ferrous materials) and their uses in buildings, iron, methods of manufacture, types and uses</b>	<b>Theoretical Lecture and Execution of Wood Splitting Examination and Bending Examination</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>
<b>7</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Anti-humidity materials and the reason for their use, anti-humidity materials: types, methods of manufacture and uses</b>	<b>Theoretical lecture and introducing the student to the standard specifications for the examination of heat insulation materials and sound insulation materials available</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>
<b>Eighth</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Semi-flexible and flexible anti-moisture materials, their types, uses, methods of manufacture and liquid anti-moisture materials</b>	<b>A theoretical lecture and introducing the student to the standard specifications for examining materials for dyes</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>

<b>Ninth</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Epoxy, its definition, properties, types, and uses.</b>	<b>Theoretical lecture and implementation of testing ductility by combustion method for asphalt – cement</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>
<b>Tenth</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Thermal insulation materials, acoustic insulation materials.</b>	<b>Theoretical lecture and implementation of the Ring and Ball Test</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>
<b>Eleventh</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Dyes, glass</b>	<b>Theoretical lecture and implementation of the Ductility Test experiment</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>
<b>Twelveth</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Overview of asphalt materials, properties of asphalt materials.</b>	<b>Theoretical lecture and implementation of the Flash Point examination experiment</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>
<b>Thirteen</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Types of asphalt and its uses in construction works.</b>	<b>Theoretical lecture and implementation of the Spot Test</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>

<b>fourteenth</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Tartar paste (diamond) Uses, properties and standard tests</b>	<b>Theoretical lecture and implementation of standard tests for binders (epoxy)</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>
<b>fifteenth</b>	<b>2T + 2P</b>	<b>Student understands the lesson</b>	<b>Bituminous felt , properties, applications and field tests</b>	<b>A theoretical lecture with an introduction to standard glass examinations</b>	<b>Discussion, Quick Quiz, Homework and Lab Report</b>

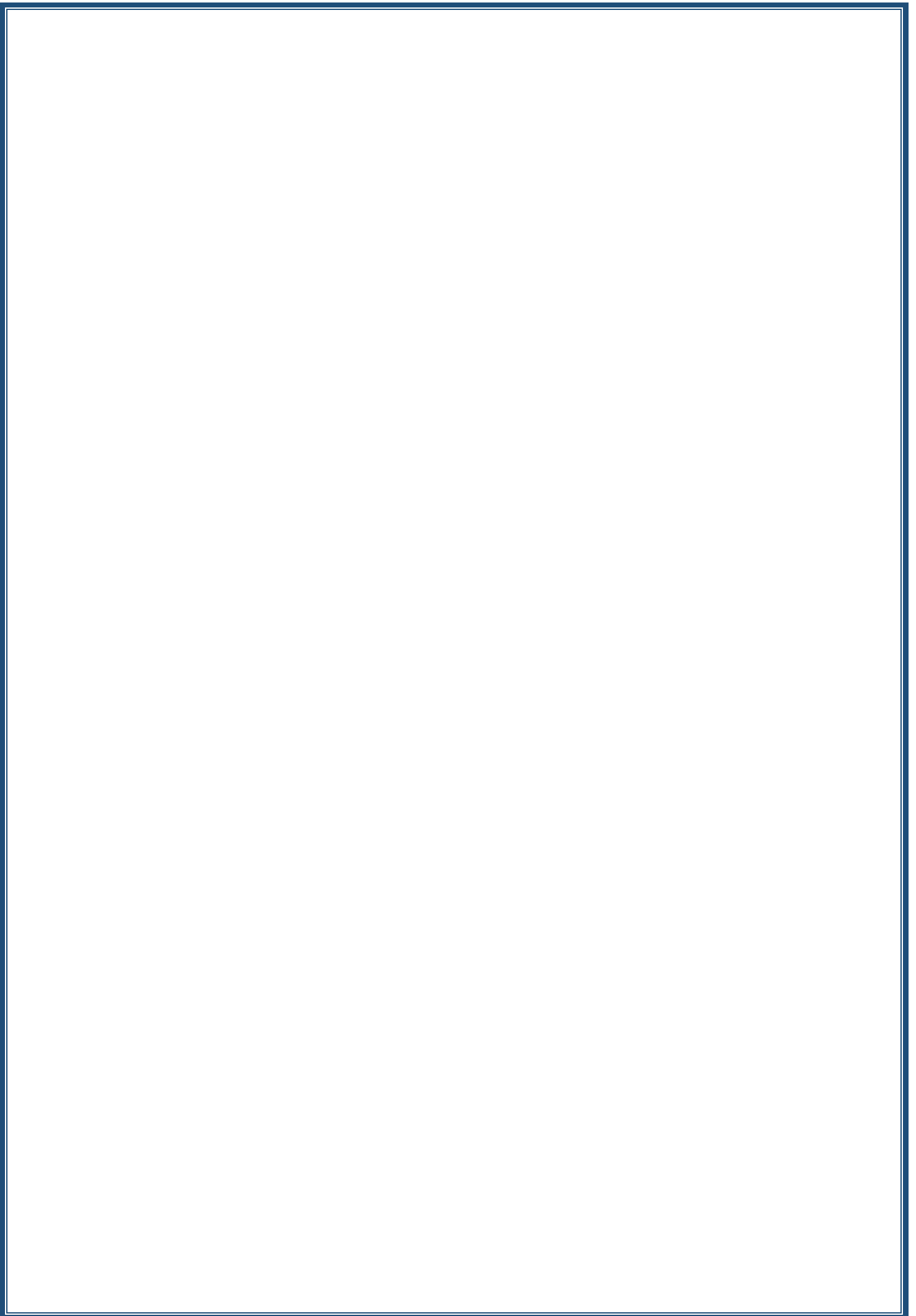
### 11. Course Evaluation

The evaluation is based on:

1. Midterm Exam ( 20% Theoretical + 10% Practical )
3. The work of the year (10% ) shall be taken into account attendance and participation .
4. Final exam ( 40% N + 10% N ) first round and second round.

### 12. Learning and Teaching Resources

Required textbooks (methodology if any)	
Key References (Sources)	Building Construction Book/ Zuhair Sako + Artin Levon
Recommended supporting books and references (scientific journals, reports... )	All discreet scientific journals related to construction materials
E-References, Websites	<ul style="list-style-type: none"> <li>• Book of Building Materials and Raw Materials Used in Construction</li> <li>• Asphalt/Electronic Technology</li> </ul>



## Course Description Form

1. Course Name: Engineering Mechanics					
2. Course Code: C1-2					
3. Semester / Year: Semester					
4. Description Preparation Date: 2024					
5. Available Attendance Forms: Attendance is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3 in week					
7. Course administrator's name (mention all, if more than one name)					
Name: سلمان خيون خضر					
Email:					
8. Course Objectives					
Course Objectives		Study of the force acting on the objects in the case static of particular bodies, also study strength of materials.			
9. Teaching and Learning Strategies					
1-Lectures 2- laboratory 3-mechanical workshops 4- systematic training 5-summer training					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Engineering Mechanics	Definition of mechanics, force and trigonometric ratios	Theoretical practical	Test + practical
2	3	Engineering Mechanics	Analysis of forces	Theoretical + practical	Test + practical
3	3	Engineering Mechanics	Triangle force and parallelogram laws	Theoretical practical	Test + practical
4	3	Engineering Mechanics	Moment of forces	Theoretical practical	Test + practical
5	3	Engineering Mechanics	Couples	Theoretical practical	Test + practical

6	3	Engineering Mechanics	Resultant of concurrent force	Theoretical practical	Test + practical
7	3	Engineering Mechanics	Resultant of non-concurrent forces	Theoretical practical	Test + practical
8	3	Engineering Mechanics	Distributed loads	Theoretical practical	Test + practical
9	3	Engineering Mechanics	Equilibrium in concurrent forces	Theoretical practical	Test + Practical
10	3	Engineering Mechanics	Equilibrium in non-concurrent forces	Theoretical practical	Test + Practical
11	3	Engineering Mechanics	Types of beams and supports	Theoretical practical	Test + Practical
12	3	Engineering Mechanics	Analysis of trusses by method of joints	Theoretical practical	Test + Practical
13	3	Engineering Mechanics	Analysis of trusses by method of sections	Theoretical practical	Test + practical
14	3	Engineering Mechanics	Friction, friction theory	Theoretical practical	Test + practical
15	3	Engineering Mechanics	Laws of friction, types of friction, applications	Theoretical practical	Test + practical

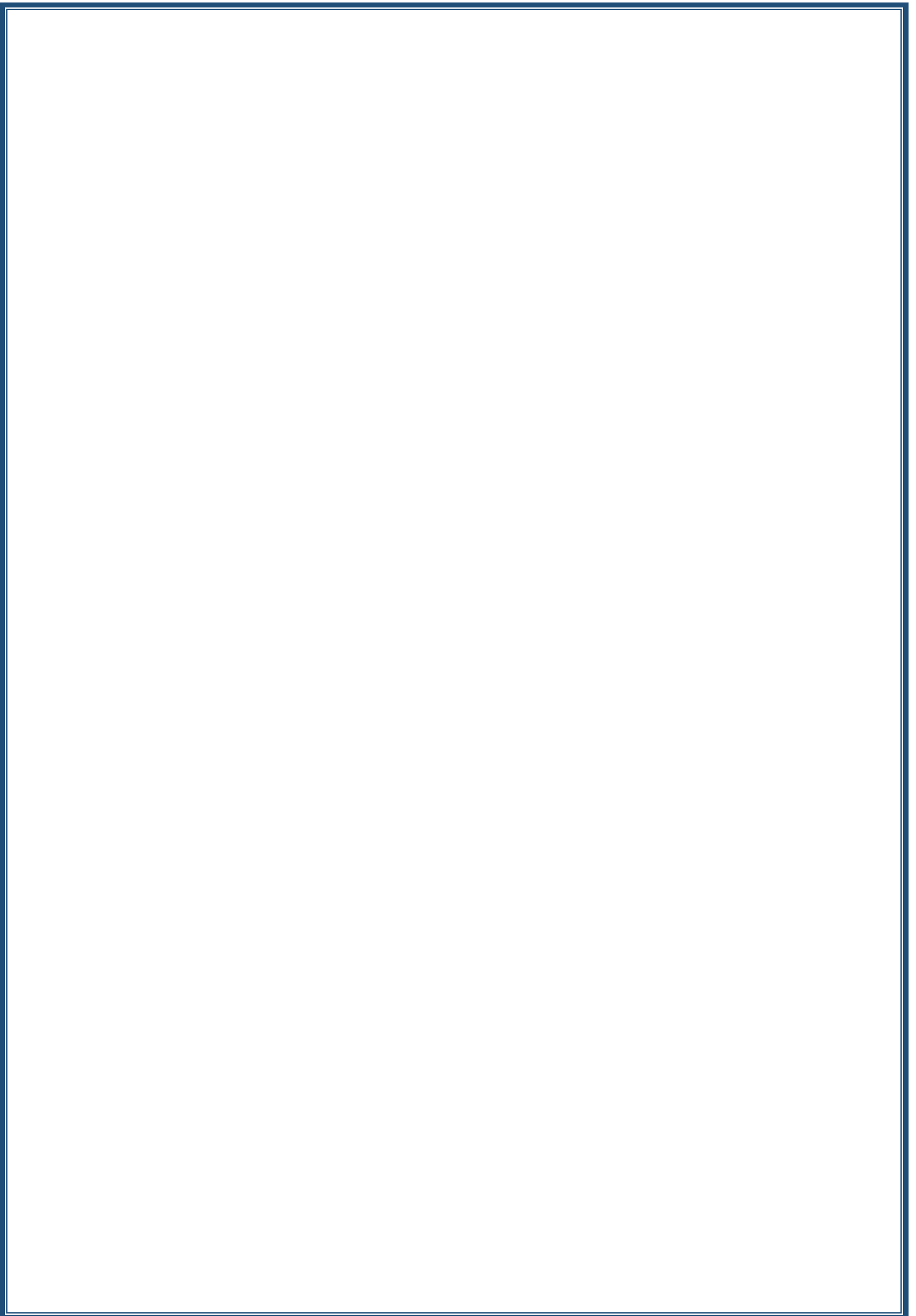
### 11. Course Evaluation

10% Practical  
10% Evaluation  
20 %Theoretical  
60 %Final (10 Practical+50 Theoretical)

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Textbooks countable by the Technical Education, Engineering Mechanics by Higdon, Singer for Strength of Materials.
Main references (sources)	Engineering Mechanics static's Sixth edition, J.L.Meriam&L.G.Kraige
Recommended books and references (scientific journals, reports...)	Adoption of teaching on external sources methodology in the preparation of lectures
Electronic References, Websites	Engineering Mechanics static and Dynamic I.C.Joung&B.C.Rogers





## Course Description Form

1. Course Name: Strength of materials					
2. Course Code: C1-2					
3. Semester / Year: Semester					
4. Description Preparation Date: 2024					
5. Available Attendance Forms: Attendance is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3 in week					
7. Course administrator's name (mention all, if more than one name)					
Name: سلمان خيون خضر					
Email:					
8. Course Objectives					
Teaching the student to analyze the forces and loads imposed on the bodies and extract the stresses as a result of these forces and their attachment to the materials that make up these bodies, analyze the facilities and find the forces and stresses in their parts as a result of shedding external loads and stuck to the dimensions of the different parts in engineering facilities to withstand the stresses imposed on them safely and economically.					
9. Teaching and Learning Strategies					
1 –Lectures 2- laboratory 3-mechanical workshops 4- systematic training 5-summer training					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Strength of materials	Introduction about strength of materials, Centroids of simple shapes	Theoretical + practical	Test + practical
2	3	Strength of materials	Centroids of complex shapes	Theoretical + practical	Test + practical
3	3	Strength of materials	Moment of inertia for the simple shapes	Theoretical + practical	Test + practical
4+5	3	Strength of materials	Moment of inertia for the complex shapes	Theoretical + practical	Test + practical

6	3	Strength of materials	Strength of materials, definit of stress, types of stresses factor of safety	Theoretical practical	Test + practical
7	3	Strength of materials	Strain, hook's law	Theoretical practical	Test + practical
8	3	Strength of materials	Lateral strain, poison's ratio	Theoretical practical	Test + practical
9+10	3	Strength of materials	Shear force and bending moment diagrams	Theoretical practical	Test + practical
11	3	Strength of materials	Bending stress for beams	Theoretical practical	Test + Practical
12	3	Strength of materials	Shear stress for beams	Theoretical practical	Test + Practical
13	3	Strength of materials	Beams which making from two materials	Theoretical practical	Test + Practical
14+15	3	Strength of materials	Reinforced concrete beams	Theoretical practical	Test + Practical

### 11. Course Evaluation

10% Practical  
10% Evaluation  
20 %Theoretical  
60 %Final (10 Practical+50 Theoretical)

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Textbooks countable by the Technical Education, Engineering Mechanics by Higdon, Singer for Strength of Materials.
Main references (sources)	Engineering Mechanics static's Edition 12, Hibble
Recommended books and references (scientific journals, reports...)	Adoption of teaching on external sources methodology in the preparation of lectures
Electronic References, Websites	Engineering Mechanics static and Dynamic I.C.Joung&B.C.Rogers

## Course Description Form

<b>1. Course Name:</b>					
The Principle of surveying					
<b>2. Course Code:</b>					
C1-3					
<b>3. Semester / Year:</b>					
2023 – 2024 first semester					
<b>4. Description Preparation Date:</b>					
2024					
<b>5. Available Attendance Forms:</b>					
Students in first stage					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
(60) hours and (4) units					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Jabbar Hassoon Hasan Email: jabbar.hasson@mtu.edu.iq					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>			<ul style="list-style-type: none"> <li>• Introducing students to the basics of surveying building and knowing how to drop or survey a specific area</li> <li>• How to settle and amend land</li> <li>• Knowing the properties of horizontal and vertical angles.</li> <li>• Introduce the student to the fax.</li> <li>• Introducing the student to modern surveying devices and methods of working on them</li> </ul>		
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		1- Asking questions and inquiries that are distinguished by depth and accuracy. 2- Directing the student towards understanding the cause and reason. 3- Developing a digital sense of expression. 4- Brainstorming.			
<b>10. Course Structure</b>					
<b>Week</b>	<b>Hours</b>	<b>Required Learning</b>	<b>Unit or subject name</b>	<b>Learning</b>	<b>Evaluation</b>

		Outcomes	method	method
1	4	Definition of surveying - its fields - its divisions - its uses - units of measurement.	Theory and Practical	1. Quick questions. 2. Weekly reports. 3. Daily exams. 4. Discussing problems and solutions
2	4	Measurement of horizontal distances on plane land - Measurement of horizontal distance on land of irregular slope.	Theory and Practical	
3	4	Measuring horizontal distances on sloping terrain (regular sloping)	Theory and Practical	
4	4	Set up and shoot down columns - overcome obstacles which abstract the measurement of horizontal distance	Theory and Practical	
5	4	Tape survey	Theory and Practical	
6	4	Plane table - its parts - methods of lifting the Plane table (radiation method)	Theory and Practical	
7	4	Front cross lift method, rotation method (locking error and how to correct it) Advantages and disadvantages of Plane table survey	Theory and Practical	
8	4	levelling - Definitions Related to It - Purposes	Theory and Practical	
9	4	Calculating the levels of points using H.I	Theory and Practical	
10	4	Calculating the levels of points using the method of rising and falling	Theory and Practical	
11	4	Double leveling - the effect of the Earth's sphericity and optical refractions on the leveling work	Theory and Practical	
12	4	Inverted levelling Mutual levelling	Theory and Practical	
13	4	Sources of errors in leveling work - accuracy - allowable error	Theory and Practical	
14	4	profiles	Theory and Practical	
15	4	Cross-sections - Finding the levels of points of a cross-section - Drawing the cross-section	Theory and Practical	

### 11. Course Evaluation

	Mid semester	Final semester
40 %	10 degrees practical	60 %
	10 degrees theory	
	10 degrees assessment	10 degrees practical   10 degrees theory

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	المساحة المستوية والطوبوغرافية المساحة العملي
Main references (sources)	المساحة الهندسية
Recommended books and references (scientific journals, reports...)	<b>Surveying principles and application</b>
Electronic References, Websites	

## Description Form

<b>1. Course Name:</b>	
surveying techniques	
<b>2. Course Code:</b>	
C1-3	
<b>3. Semester / Year:</b>	
2023 – 2024 second semester	
<b>4. Description Preparation Date:</b>	
2024	
<b>5. Available Attendance Forms:</b>	
Students in first stage	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
(60) hours and (4) units	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Jabbar Hassoon Hasan Email: jabbar.hasson@mtu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"><li>• Introducing students to the basics of surveying building and knowing how to drop or survey a specific area</li><li>• How to settle and amend land</li><li>• Knowing the properties of horizontal and vertical angles.</li><li>• Introduce the student to the fax.</li><li>• Introducing the student to modern surveying devices and methods of working on them</li></ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	1- Asking questions and inquiries that are distinguished by depth and accuracy. 2- Directing the student towards understanding the cause and reason. 3- Developing a digital sense of expression. 4- Brainstorming.
<b>10. Course Structure</b>	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Grade line Calculation of the slope of the Grade line Finding the elevations of the points of the Grade line if the slope is known		Theory and Practical	1. Quick questions. 2. Weekly reports. 3. Daily 4. Discussing problems and solutions exams.
2	4	Calculation of land areas and cross sections		Theory and Practical	
3	4	Calculating areas using a planometer		Theory and Practical	
4	4	Calculating the volumes of earthen quantities for cut and fill		Theory and Practical	
5	4	Checking and adjusting the leveling device - balancing the leveling lines (leveling balancing).		Theory and Practical	
6	4	Contour lines - their properties - Contour period - Factors on which the contour period depends - Determination of contour lines (Direct Method)		Theory and Practical	
7	4	Methods for determining contour lines (indirect methods), sectional method, set point method, square method		Theory and Practical	
8	4	drawing contour lines		Theory and Practical	
9	4	Slopes - Calculation of volumes for tanks - Drawing of sections from contour lines		Theory and Practical	
10	4	Direction - Circular direction- bearing		Theory and Practical	
11	4	Surveying using a compass		Theory and Practical	
12	4	Curves - Horizontal Curves - Elements of a Simple Circular Curve		Theory and Practical	
13	4	Simple Circular Curve Design - Simple Circular Curve Drawing		Theory and Practical	
14	4	Vertical Curves - Vertical Curve Design		Theory and Practical	
15	4	General Review		Theory and Practical	

### 11. Course Evaluation

Mid semester		Final semester	
40 %	10 degrees practical	60 %	
	10 degrees theory		
	10 degrees assessment	10 degrees practical	10 degrees theory

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	المساحة المستوية والطوبوغرافية المساحة العملي
Main references (sources)	المساحة الهندسية
Recommended books and references (scientific journals, reports...)	<b>Surveying principles and application</b>
Electronic References, Websites	

## Course Description Form

1. Course Name: : English language 1

2. Course Code: C1-4

3. Semester / Year: The first semester of the academic year 2023-2024

4. Description Preparation Date: 2024\2\11

5. Available Attendance Forms: Mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total): 2 theory \* 15 weeks = 30 hours Faculty

7. Course administrator's name (mention all, if more than one name)

Name: Salman Khayoun Khader

Email: Salman [Khayoun@gmail.com](mailto:Khayoun@gmail.com)

8. Course Objectives

**Course Objectives**

**Improving students' skills in English language, developing their reading, writing and listening abilities, and enable them to write scientific reports in English language**

9. Teaching and Learning Strategies

**Strategy**

1-Preparation and implementation of research and projects by students within the vocabulary section of space technology materials and the introduction of the applications of mathematics as presented in the annual student conferences.  
2-Develop and upgrade of the vocabulary of mathematics to keep up with development in order to achieve personal development to the level of the students.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Explanation and clarification through lectures	Introductions, am/ are/ is. What is this in English?	Lecture presentation	Exam
2	2	Explanation and clarification through lectures	Numbers 1 – 10. Plurals. Good morning!:	Lecture presentation	Exam



3	2	Explanation and clarification through lectures	Countries, am/are/is. Her name's. She's from. Questions. Adjectives good/awful. Numbers 11 – 30	Lecture presentation	Exam
4	2	Explanation and clarification through lectures	Jobs, is/ isn't. Questions & negatives. Vocabulary revision. Social expression (1).	Lecture presentation	Exam
5	2	Explanation and clarification through lectures	Passive's, my/our/her. The family, has/have. Vocabulary revision. The alphabet	Lecture presentation	Exam
6	2	Explanation and clarification through lectures	Sports/food/drink. Present simple-1/you/they. Language nationalities. How much is it?	Lecture presentation	Exam
7	2	Explanation and clarification through lectures	The time. Present Simple-he/s. Prepositions in/at/on. Words that go together. Days of the week	Lecture presentation	Exam
8	2	Explanation and clarification through lectures	Questions. Pronouns me/him. Possessive adjectives my/his/this/that. Adjectives happy/miserable. Can I..?	Lecture presentation	Exam
9	2	Explanation and clarification through lectures	Questions. Pronouns me/him. Possessive adjectives my/his/this/that. Adjectives happy/miserable. Can I..?	Lecture presentation	Exam
10	2	Explanation and clarification through lectures	Saying years, was/were. Past Simple-irregular verbs have/do/go. Months & dates.	Lecture presentation	Exam
11	2	Explanation and clarification through lectures	Past Simple-regular verbs. Questions & negatives. Making conversation. Sport & leisure activities. Going sightseeing	Lecture presentation	Exam
12	2	Explanation and clarification through lectures	Can/can't. Adverbs-very well/at all. Requests & offers. Adjective + noun. Everyday problems	Lecture presentation	Exam
13	2	Explanation and clarification through lectures	Some/any. I'd like a../I'd like to. Offering things. Like & would like. Food	Lecture presentation	Exam
14	2	Explanation and clarification through lectures	Colours & clothes. Present Continuous. Present Simple or Continuous?. Opposite verbs-leave-arrive. What's the matter?	Lecture presentation	Exam
15	2	Explanation and clarification through lectures	Future plans. Grammar revision. Vocabulary revision. Form filling. Social expressions (2)	Lecture presentation	Exam

## 11. Course Evaluation

1. The first month exam (10%Theory)
2. The second month exam (10%Theory)
3. Acts of the course (10%) is taken into account attendance and participation.
4. Final exam (70%T) first-round and second round.

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Required textbooks (curricular books, if any) \*  
Newheadway Plus, Pre-Intermediate Student's book  
by John & Liz Soars Press. Oxford  
\*Newheadway Plus, Beginner Workbook by John &  
Soars Press. Oxford

## Course Description Form

<b>1. Course Name</b>					
Mathematics 1					
<b>2. Course Code:</b>					
C1-5					
<b>3. Semester / Year</b>					
Semester1					
<b>4. Description Preparation Date</b>					
2024\2\11					
<b>5. Available Attendance Forms</b>					
Mandatory attendance					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
2 theory * 15 weeks = 30 hours Faculty					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Noor Salih Mahdi Email: noorsalihm@mtu.edu.iq					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>		<p>1-understand the key concepts and knowledge of the rules and the laws of mathematics and its application in space technology.</p> <p>2-the subject of mathematics that are designed to clarify the practical and philosophical challenges of the current engineering and mathematics that spurred this constant evolution as well as providing basic concepts of differentiation and integration useful for further study of the science of engineering and applied mathematics in the scientific and practical field</p> <p>3-students acquire the skills to resolve issues</p>			
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		<p>1-Preparation and implementation of research and projects by students within the vocabulary section of space technology materials and the introduction of the applications of mathematics and presented in the annual student conferences.</p> <p>2-Develop and upgrade of the vocabulary of mathematics to keep up with development in order to achieve personal development to the level of the students.</p>			
<b>10. Course Structure</b>					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	The student understands the lesson	Matrices, determinants, and their properties	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

2	2	The student understands the lesson	determinants Applications on, by using Cramer's rule ,Liner of equation .Solve force analysis equations	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
3	2	The student understands the lesson	vector ,vector and scalar quantities ,analysis the vectors ,The Vectors . arithmetic operations of vectors in space ,algebra	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
4	2	The student understands the lesson	Standard and Directional vector scale ,orthogonal vector unit .Calculation of torque applications, work vector application, Multiplication.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
5	2	The student understands the lesson	Logarithmic functions ,Hyperbolic Trigonometric functions ,Functions.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
6	2	The student understands the lesson	the hyperbolic function Exponential function, hyperbolic function its ,properties.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
7	2	The student understands the lesson	Limits application ,purpose of algebraic and trigonometric functions Limits.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
8	2	The student understands the lesson.	Sequence.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
9	2	The student understands the lesson.	Derivatives of algebraic functions chain base , Derivatives.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
10	2	The student understands the lesson.	Curvilinear functions, the derived scalar function with higher orders.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
11	2	The student understands the lesson.	Derivative of logarithmic functions , Derivative of trigonometric functions.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
12	2	The student understands the lesson.	Function exponential's, Hyperbolic Function.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
13	2	The student understands the lesson.	Derives Application acceleration and. the speed Equation, Tangent	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
14	2	The student understands the lesson.	Exponential and Logarithmic	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
15	2	The student understands the lesson.	.Draw functions ,General physical and engineering applications	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

## 11. Course Evaluation

1. The first month exam (10%Theory)

2. The second month exam (10%Theory)
3. Acts of the course (10%) is taken into account attendance and participation.
4. Final exam (70%T) first-round and second round.

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Institute library for additional resources for curriculum
Main references (sources)	Thomas 'Calculus
Recommended books and references (scientific journals, reports...)	All journals deals with mathematic
Electronic References, Websites	Website deals with mathematic

## Course Description Form

1. Course Name: Mathematics 2

2. Course Code: C1-5

3. Semester / Year: Semester

4. Description Preparation Date: 2024\2\11

5. Available Attendance Forms: Mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total): 2 theory \* 15 weeks = 30 hours Faculty

7. Course administrator's name (mention all, if more than one name)

Name: Noor Salih Mahdi

Email: noorsalihm@mtu.edu.iq

8. Course Objectives

**Course Objectives**

- 1-understand the key concepts and knowledge of the rules and the laws of mathematics its application in space technology.
- 2-the subject of mathematics that are designed to clarify the practical and philosophical challenges of the current engineering and mathematics that spurred this constant evolution as well as providing basic concepts of differentiation and integration useful for further study of the science of engineering and applied mathematics in the scientific and practical field
- 3-students acquire the skills to resolve issues

9. Teaching and Learning Strategies

**Strategy**

- 1-Preparation and implementation of research and projects by students within the vocabulary section of space technology materials and the introduction of the applications of mathematics and presented in the annual student conferences.
- 2-Develop and upgrade of the vocabulary of mathematics to keep up with development in order to achieve personal development to the level of the students.

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	The student understands the lesson	Integration and Indefinite integral	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
2	2	The student understands the lesson	Integration of Logarithmic functions	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
3	2	The student understands the lesson	integration of Function exponential's	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
4	2	The student understands the lesson	Definite integral, Application of definite integrals, Area under the curve, Area between two curves	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
5	2	The student understands the lesson	Rotational volumes, arc lengths	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
6	2	The student understands the lesson	Physics and engineering applications (work, torque, momentum, moment of inertia)	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
7	2	The student understands the lesson	General methods of integration, including substitution and division	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
8	2	The student understands the lesson.	Use partial, exponential and logarithmic fractions.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
9	2	The student understands the lesson.	Numerical methods of integration, trapezoidal rule rule (calculating the volume earthy quantities and the area of longitudinal sections	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
10	2	The student understands the lesson.	Solving discrete, homogeneo and linear differential equations with their various applications within the field specialization	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
11	2	The student understands the lesson.	Find the value of the highest lowest point of a vertical Curve	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
12	2	The student understands the lesson.	Complex numbers, addition, subtraction, multiplication, division	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

13	2	The student understands the lesson.	Polar formula, conversion of polar formula to algebraic and vice versa, powers and roots, representation of roots by drawing	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
14, 15	2	The student understands the lesson.	. Statistical processes, frequency distributions, histogram, frequency curve, .mean, range, standard deviation, variance and relative applications	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

## 11. Course Evaluation

1. The first month exam (10%Theory)
2. The second month exam (10%Theory)
3. Acts of the course (10%) is taken into account attendance and participation.
4. Final exam (70%T) first-round and second round.

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Institute library for additional resources for curriculum
Main references (sources)	Thomas 'Calculus
Recommended books and references (scientific journals, reports...)	All journals deals with mathematic
Electronic References, Websites	Website deals with mathematic



## Course Description Form

1. Course Name: The computer

2. Course Code: C1-6

3. Semester / Year: Academic year 2024 – 2023

4. Description Preparation Date: 15/2/2024

5. Available Attendance Forms: Theoretical and practical lectures

6. Number of Credit Hours (Total) / Number of Units (Total)  
1 theoretical \*15 weeks = 15 total hours and 2 practical \*15 weeks = 30 hours

7. Course administrator's name (mention all, if more than one name)

Name: Huda Karim Kazem

Email: vvknk4666a@gmail.com

8. Course Objectives

- 1) The student gets to know the concept of computer science.
- 2) Teaching the student to work on the computer using Word and Excel so that he is able to use the calculator and work on these basic programs easily.
- 3) Teaching and teaching students all the necessary information related to computers, which qualifies them to work and research in all computer fields

9. Teaching and Learning Strategies

- The teacher introduces students to the most important main applications of ready-made software applications
- Giving students extracurricular assignments that require them to apply skills and self-explanations in experimental ways
- Interrogating students through seminars by asking thinking questions (how, why, when, where, which) for specific topics.
- Using the method of brainstorming and feedback in order to activate the accumulated experiences of students by linking the study materials that were taken in the previous academic stages and linking them to the new ones.

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1_2	1T+2p	The student understands the lesson	Induction with computers: generations, components (Hardware and software)	Lecture Theoretical	Discussion and solving exercises Quiz, Homework
3-4	1T+2p	The Student understands the lesson	Windows XP operating system: concept of a Windows system, advantages basic requirements of operating system, main screen components the surface of the library Desktop, concept of the Icons, the way of dealing with activities of all mouse View	Lecture Theoretical	Discussion and solving exercises Quiz, Homework
5	1T+2p	The Student understands the lesson	The concept of window of a program and to identify the major components, dealing with Recycle bin, computer, Documents Create a floppy disk, copy the folders and files, to take advantage of cutting and pasting and knowledge of	Lecture Theoretical	Discussion and solving exercises Quiz, Homework

6	1T+2p	The Student understands the lesson	<p>properties of disks, folders and files</p> <p>Take advantage of control programs Control panel: such as mouse icon, and icon display and how to change desktop background and library control screen saver and change the appearance of lists of windows and colors, Remove prog icon.</p>	Lecture Theoretical	Discussion and solving exercises Quiz, Homework
7	1T+2p	The Student understands the lesson	Benefit from the Run option in implementation of programs directly and learn how to help and the various helper methods	Lecture Theoretical	Discussion and solving exercises Quiz, Homework
8	1T+2p	The Student understands the lesson	<p>The use entertainment programs such as Media player Window films in running</p> <p>- Take advantage additional programs (Accessories) , such as a</p>	Lecture Theoretical  Lecture	Discussion and solving exercises Quiz, Homework  Discussion and

9-10 -11	1T+2p	The Student understands the lesson	Vision Tools View: command (Zoom) and options, command (Pan) and options, how zoom, Pan at same time	Theoretical	Solving exercises, Quiz, Homework
12-13 14-15	1T+2p	The Student understands the lesson	- Microsoft Excel program, how to run it, how to enter numerical values columns and stores , add new columns rows, and apply some functions such as addition and other mathematical operations	Lecture theoretical	Discussion and Solving exercises, Quiz, Homework

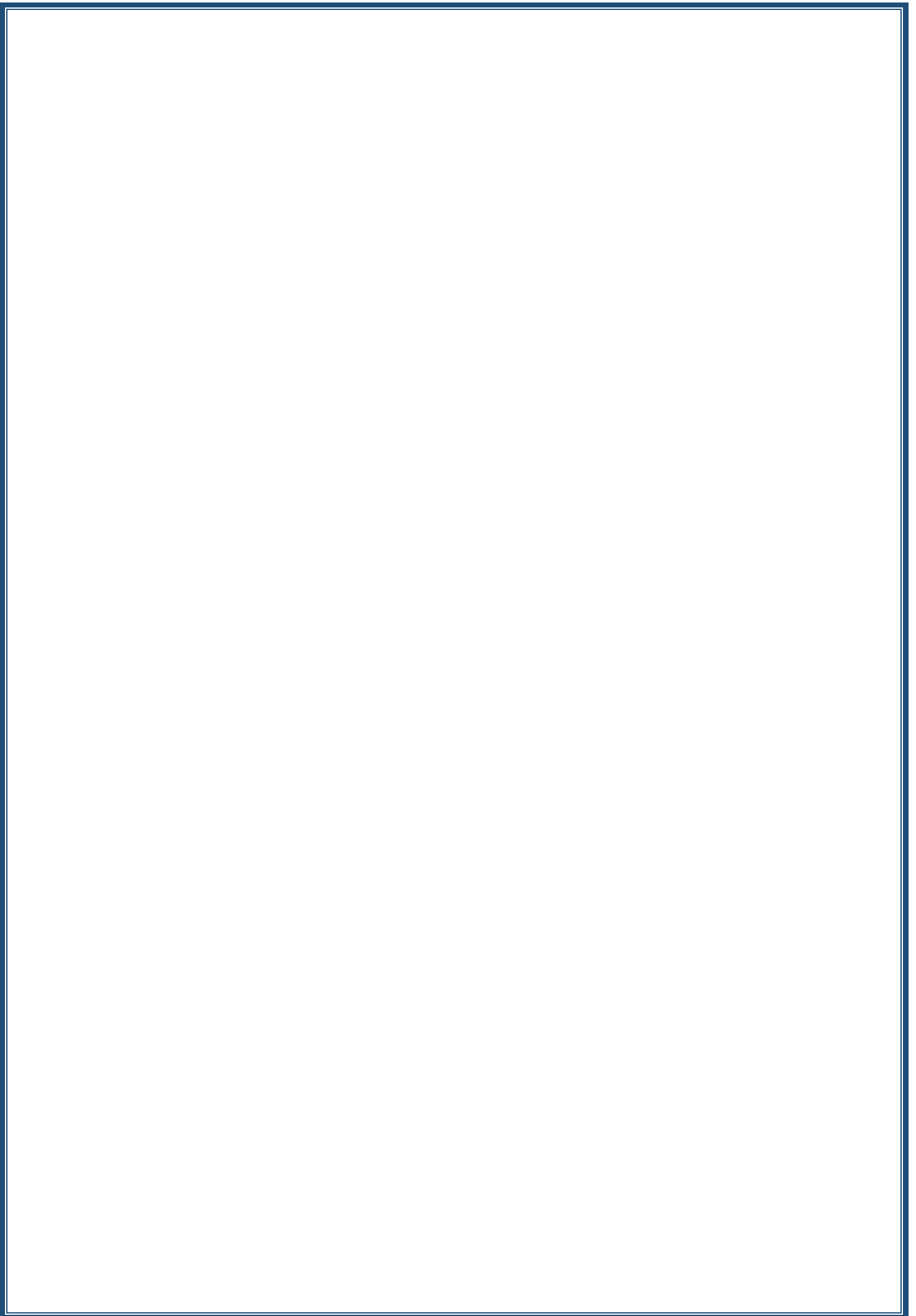
## 11. Course Evaluation

Mid-term exam score of (40) (10 practical marks, 10 attendance and participation marks, and 20 theoretical marks)

The final course exam grade is (60) (10 practical exam grades and 50 theoretical exam grades)

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Computer basics and office application Ministry of Higher Education and Scientific Research - Department Research and Development
Main references (sources)	Available books for subject vocabulary which include Word and Excel
Recommended books and references (scientific journals, reports...)	Recommended supporting books and references (scientific journals and reports)
Electronic References, Websites	Electronic references, Internet sites



## Course Description Form

1. Course Name: The computer

2. Course Code: C1-6

3. Semester / Year: Academic year 2024 – 2023

4. Description Preparation Date: 15/2/2024

5. Available Attendance Forms: Theoretical and practical lectures

6. Number of Credit Hours (Total) / Number of Units (Total)  
1 theoretical \*15 weeks = 15 total hours and 2 practical \*15 weeks = 30 hours

7. Course administrator's name (mention all, if more than one name)

Name: Huda Karim Kazem

Email: vvknk4666a@gmail.com

8. Course Objectives

**Course Objectives**

**1-Knowing the optimal use of the computer drawing program, starting with studying three-dimensional objects and how to deal with them**

**With it, in addition to AutoCAD, deletion, rotation, layers, and photography.**

**2- Introducing the student to the use of the calculator**

**in the drawing and design process in the AutoCAD program**

9. Teaching and Learning Strategies

**Strategy**

- The teacher introduces students to the most important main applications of ready-made software applications
- Giving students extracurricular assignments that require them to apply skills and self-explanations in experimental ways
- Interrogating students through seminars by asking thinking questions (how, why, when, where, which) for specific topics.
- Using the method of brainstorming and feedback in order to activate the accumulated experiences of students by linking the study materials that

were taken in the previous academic stages and linking them to the new ones.

## 10. Course Structure

Week	Hours	Learning method	Unit or subject name	Required Learning Outcomes	Evaluation method
The First	2	Giving lectures students	- AutoCAD 2004 program / getting to know the program's working environment and methods of accessing commands and instructions, storing and opening files, auxiliary commands, units, drawing limits, methods of selecting and selecting objects.	General understanding the topic	Using Oral And Written questioning methods
The Second	2	Giving lectures students	Commands POLAR/OTRAK /LWT/ORTHO /OSNAP /GRID/SNAP Distance command And the Area command	General understanding the topic	Using Oral And Written questioning methods
the third	2	Giving lectures students	View Tools: The Zoom command and its options, the Pan command and its options, how to work zoom and pan at the same time, the Regen command in modifying graphics.	General understanding the topic	Using Oral And Written questioning methods
Fourth -fifth	2	Giving lectures students	Drawing commands Basic Draw: Line, Multiline, Construction line, Polyline, Polygon Rectangle, Arc, Circle, Revcloud, Spline, Ellipse, Make block, Insert block, Point Hatch, Region  Edit commands Offset, Mirror, Copy, Erase, Modify, Array, Move, Rotate Scale, Fillet, Chamfer, Extend, Trim, Stretch, Explode	General understanding the topic	Using Oral And Written questioning methods

Sixth-seventh	2	Giving lectures students	Editing commands Offset, Mirror, Copy, Erase, Modify, Array, Move, Rotate Scale, Fillet, Chamfer, Extend, Trim, Stretch, Explode	General understanding the topic	Using Oral And Written questioning methods
Eighth-ninth	2	Giving lectures students	Commands for writing and modifying Text: Single line Text, Multi line text How to create new writing styles Get to know the Design Center and benefit from ready-made frames, landscape models, electrical tools and all specialties. Engineering	General understanding the topic	Using Oral And Written questioning methods
The tenth eleventh twelveth	2	Giving lectures students	Divide commands: Divide Measure Control drawing specifications: Colo, Lineweight, Linetype. Modify the properties of graphic elements using Match properties, Properties Grips	General understanding the topic	Using Oral And Written questioning methods
Thirteenth fourteenth fifteenth	2	Giving lectures students	The concept of computer viruses: how to get infected, Their types, treatment, and dealing with them through anti-virus programs available within the Windows operating system environment	General understanding the topic	Using Oral And Written questioning methods



## 11. Course Evaluation

Mid-term exam score of (40) (10 practical marks, 10 attendance and participation marks, and 20 theoretical marks)

The final course exam grade is (60) (10 practical exam grades and 50 theoretical exam grades)

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Institute library for additional resources For the curriculum
Main references (sources)	Available books for subject vocabulary, which include a program AutoCAD
Recommended books and references (scientific journals, reports...)	All relevant scientific journals With AutoCAD program
Electronic References, Websites	Websites related to ready-made applications

## Course Description Form

1. Course Name: Engineering Drawing					
2. Course Code: C1-7					
3. Semester / Year: First Semester					
4. Description Preparation Date: 2024					
5. Available Attendance Forms: Attendance is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total): 6 hour in week					
7. Course administrator's name (mention all, if more than one name)					
Name: علي عبد الخالق					
Email:					
8. Course Objectives					
<p><b>Teaching the student the principles of elementary engineering drawing and computer drawing programs efficiently and quickly to enable him to express his ideas through him.</b></p> <p><b>Qualifying the student to draw and read engineering maps with knowledge of architectural and structural terms that are used in maps.</b></p>					
9. Teaching and Learning Strategies					
Strategy		Lecture			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	6	Engineering drawing	Basics of engineering drawing tools used, installation of the panel, types of lines	Practical drawing	Homework + Exam
2	6	Engineering drawing	Writing in Kufic Arabic geometric calligraphy and writing English letters and numbers in geometric calligraphy	Practical drawing	Homework + Exam

3	6	Engineering drawing	Engineering processes, halving a straight segment, halving angle, connecting a straight with a circle with an arc, connecting two lines with an arc, drawing Equilateral triangle	Practical drawing	Homework + Exam
4	6	Engineering drawing	Engineering operations Drawing a pentagon and hexagon shape in more than one way and drawing a seven-sided shape	Practical drawing	Homework + Exam
5	6	Engineering drawing	Straight tangent drawing of two circles from the inside and outside, arc tangent to the inside and outside circles	Practical drawing	Homework + Exam
6	6	Engineering drawing	Ellipse	Practical drawing	Homework + Exam
7	6	Engineering drawing	Apply drawing geometric shapes using basic geometric processes.	Practical drawing	Homework + Exam
8	6	Engineering drawing	Principles of projection, method of placing dimensions on drawing, exercises on projection.	Practical drawing	Homework + Exam
9	6	Engineering drawing	Applications of axial projection on simple objects. Applications of Axial Projection on Objects with Cylindrical Protrusions and Cavities	Practical drawing	Homework + Exam
10	6	Engineering drawing	Drawing the isometric perspective	Practical drawing	Homework + Exam
11	6	Engineering drawing	Oval drawing with isometric perspective	Practical drawing	Homework + Exam
12	6	Engineering drawing	Exercises on the isometric perspective	Practical drawing	Homework + Exam
13	6	Engineering drawing	Finding the Missing Projection with Isometric Perspective Drawing	Practical drawing	Homework + Exam
14	6	Engineering drawing	Exercises , finding the missing projection with isometric perspective drawing	Practical drawing	Homework + Exam
15	6	Engineering drawing	Explanation of passages and exercises about syllables	Practical drawing	Homework + Exam

### 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	The book of engineering drawing by the author Abdul Rasoul Al-Khafaf
Main references (sources)	George Omura The Complete Guide 2007 LT AutoCAD Aldar
Recommended books and references (scientific journals, reports...)	Arab Science, Beirut Lebanon 2
Electronic References, Websites	All journals specialized in engineering drawing

## Course Description Form

1. Course Name: Engineering Drawing					
2. Course Code: C1-7					
3. Semester / Year: Second Semester					
4. Description Preparation Date: 2024					
5. Available Attendance Forms: Attendance is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total): 6 hour in week					
7. Course administrator's name (mention all, if more than one name)					
Name: علي عبد الخالق					
Email:					
8. Course Objectives					
<p><b>Teaching the student the principles of elementary engineering drawing and computer drawing programs efficiently and quickly to enable him to express his ideas through him.</b></p> <p><b>Qualifying the student to draw and read engineering maps with knowledge of architectural and structural terms that are used in maps.</b></p>					
9. Teaching and Learning Strategies					
Strategy		Lecture			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	6	Engineering drawing	AutoCAD applications, redefining the relationship between AutoCAD and its use, the completion of two-dimensional drawings (D2) and three-dimensional (D3) And open a new page in the program, Determine the scope of the drawing (Limits), Draw a painting	Practical drawing	Homework + Exam

			frame and finding data, with the application of writing inside the spreadsheet (Text)		
2	6	Engineering drawing	Learn about the types of fonts and how to obtain and use them in AutoCAD by placing them in multiple layers, different colors, and different weight line thickness	Practical drawing	Homework + Exam
3	6	Engineering drawing	Drawing basic geometric shapes, triangle, pentagon, hexagons and polygons in general, ellipse Connecting two lines p a circle sector, connecting two circles with an arc by instructing (circle Ttr) Connecting a line with a circle with an arc in the same way	Practical drawing	Homework + Exam
4	6	Engineering drawing	Drawing composite geometric shapes and mechanical parts (applications to engineering processes)	Practical drawing	Homework + Exam
5	6	Engineering drawing	Drawing projections of stereoscopic shapes and placing dimensions on them using multiple layers (layers)	Practical drawing	Homework + Exam
6	6	Engineering drawing	Draw projections of stereo shapes using different font colors and different thickness by changing properties	Practical drawing	Homework + Exam
7	6	Engineering drawing	Find the missing projection and continue drawing the projections	Practical drawing	Homework + Exam
8	6	Engineering drawing	Putting additions to the drawings (gradient & hatch), how to add additional inscriptions to the program from external sources	Practical drawing	Homework + Exam
9	6	Engineering drawing	Drawing the stereoscopic shape in a way (snap Isometric) and drawing sections in the same way And the method of repeating shapes using the command (Rectangular array & array Polar)	Practical drawing	Homework + Exam
10	6	Engineering drawing	Drawing an integrated panel containing the types of drawings (D2) and (D3) and	Practical drawing	Homework + Exam

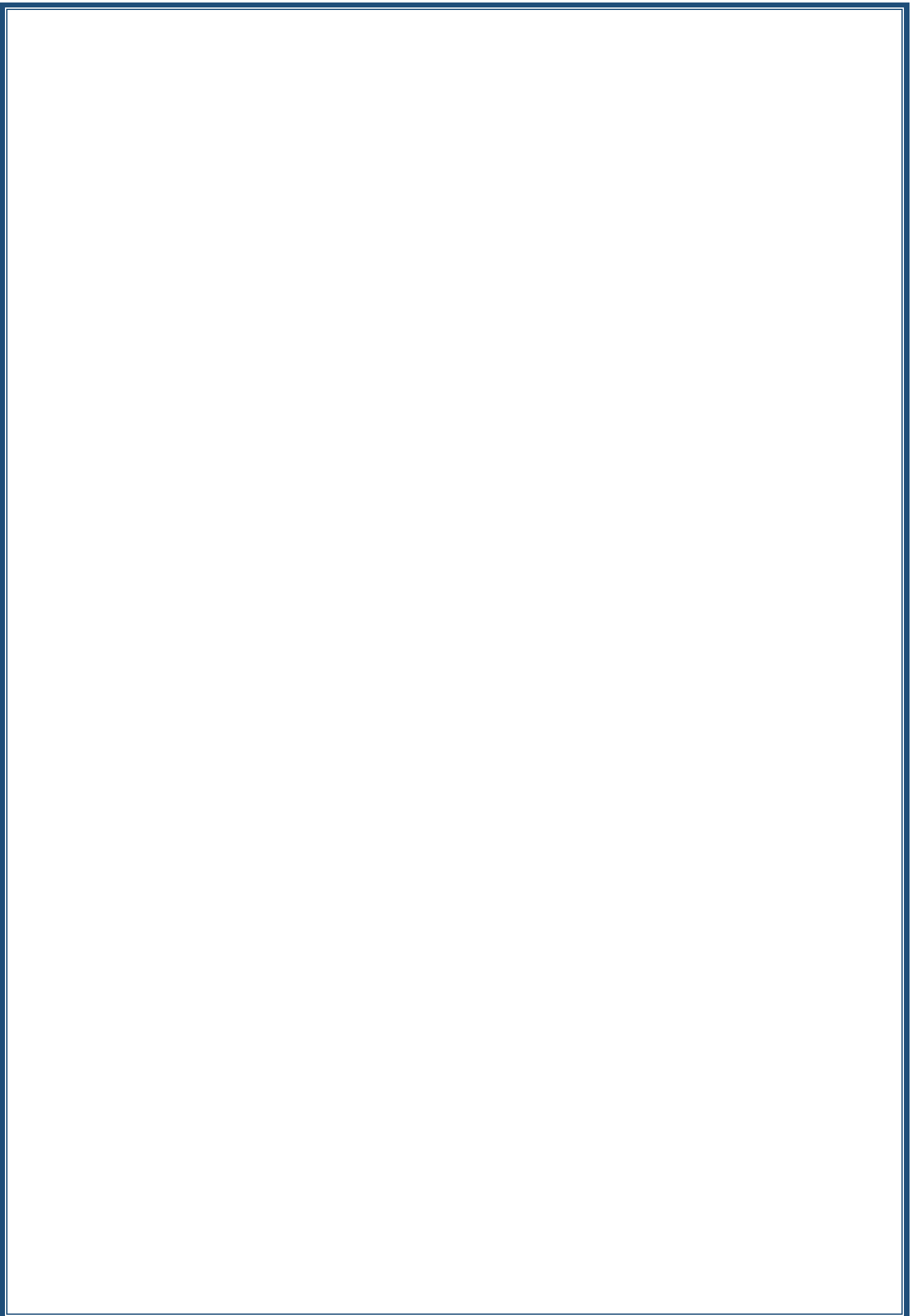
			containing a spreadsheet and explanation on the drawings, the way to display shapes with different scenes on one screen using the command (ports view).		
11	6	Engineering drawing	Singling out geometric shapes (cube, prism, pyramid)	Practical drawing	Homework + Exam
12	6	Engineering drawing	Singling out geometric shapes (cube, prism, pyramid)	Practical drawing	Homework + Exam
13	6	Engineering drawing	Singling out geometric shapes (truncated pyramid, cone).	Practical drawing	Homework + Exam
14	6	Engineering drawing	Dealing with the scale of the drawing and the method of printing using the command (plot).	Practical drawing	Homework + Exam
15	6	Engineering drawing	Method of exporting drawing from formula	Practical drawing	Homework + Exam

### 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	The book of engineering drawing by the author Abdul Rasoul Al-Khafaf
Main references (sources)	George Omura The Complete Guide 2007 LT AutoCAD Aldar
Recommended books and references (scientific journals, reports...)	Arab Science, Beirut Lebanon 2
Electronic References, Websites	All journals specialized in engineering drawing





## Course Description Form

1. Course Name: : Civilian workshops

2. Course Code: C1-8

3. Semester / Year: The second semester of the academic year 2023-2024

4. Description Preparation Date: 2024\2\11

5. Available Attendance Forms: Mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total): 3 theory \* 15 weeks = 45 hours Faculty

7. Course administrator's name (mention all, if more than one name)

Name: Basima Abbas Jabir

Email: basimaabbas86@gmail.com:

8. Course Objectives

**Course Objectives**

Acquiring the manual skill in using hand tools, measuring tools, and operating machines necessary to prepare the student as a technician  
Specialization in building and construction

9. Teaching and Learning Strategies

**Strategy**

1-Explanation and clarification through lectures  
2 - Graduation Projects  
3- Scientific visits  
4- reports

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Explanation and clarification through lectures	Measurement processes and tools used (tape, vernier, micrometer)	Conduct experiments	Reports
2	3	Explanation and clarification through lectures	Practical applications for carpentry works for civil constructions, including:	Conduct experiments	Reports
3	3	Explanation and clarification through lectures	Work: Wooden doors (pressing doors, packing doors).	Scientific visit	Reports

4	3	Explanation and clarification through lectures	Work: wooden molds.	Scientific visit	Reports
5	3	Explanation and clarification through lectures	Applications on reinforcing steel making roof, bridge and column reinforcement (cutting iron, bending iron, and welding the pieces).	Conduct experiments	Reports
6	3	Explanation and clarification through lectures	Applications on reinforcing steel making roof, bridge and column reinforcement (cutting iron, bending iron, and welding the pieces).	Conduct experiments	Reports
7	3	Explanation and clarification through lectures	Exercises on cutting and joining structural steel using rivets, screws, and welding.	Conduct experiments	Reports
8	3	Explanation and clarification through lectures	Exercises on cutting and joining structural steel using rivets, screws, and welding.	Conduct experiments	Reports
9	3	Explanation and clarification through lectures	Stone and plaster works: cutting, sawing, leveling and perforation	Conduct experiments	Reports
10	3	Explanation and clarification through lectures	Stone and plaster works: cutting, sawing, leveling and perforation	Conduct experiments	Reports
11	3	Explanation and clarification through lectures	Connecting pipes to water installations, (use of mechanization), types of accessories for pipes and methods of connecting them, installations Sanitary sewers, connection methods	Conduct experiments	Reports
12	3	Explanation and clarification through lectures	Connecting pipes to water installations, (use of mechanization), types of parts for pipes and methods of connecting them, installations Sanitary sewers, connection methods	Scientific visit	Reports
13	3	Explanation and clarification through lectures	Connecting pipes to water installations, (use of mechanization), types of parts for pipes and methods of connecting them, installations	Scientific visit	Reports
14	3	Explanation and clarification through lectures	Different types of pipes with their parts, an exercise in making a network of water and sewerage foundations for a residential house. Sanitary sewers and connection methods.	Conduct experiments	Reports
15	3	Explanation and clarification through lectures	Different types of pipes with their parts, an exercise in making a network of water and sewerage foundations for a residential house. Sanitary sewers and connection methods.	reports	Reports

## 11. Course Evaluation

1. The first month exam (10%Theory)
2. The second month exam (10%Theory)
3. Acts of the course (10%) is taken into account attendance and participation.
4. Final exam (70%T) first-round and second round.

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Building construction book - buildings and factory constructi
Main references (sources)	Building construction book - buildings and factory constructi

## Course Description Form

1. Course Name: Human Rights					
2. Course Code: C1-9					
3. Semester / Year: Semester					
4. Description Preparation Date: 2024					
5. Available Attendance Forms: Attendance is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total): 2 hour in week					
7. Course administrator's name (mention all, if more than one name)					
Name: عبد الله سلمان حساني					
Email: abdullah214@uowasit.edu.iq					
8. Course Objectives					
Introducing the student to human rights, their goals and development in different eras and the role of international organizations and public opinion in respecting and protecting human rights					
9. Teaching and Learning Strategies					
<b>Strategy</b>	Lecture Discussion and dialogue				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understand the lesson	Human rights, definition, objectives)	Lecture	Exam And the discussion and dialogue
2	2	Understand the lesson	The roots and development human rights in human history: human rights in antiquity and the Middle Ages	Lecture	Exam And the discussion and dialogue
3	2	Understand the lesson	Human rights in civilization Ancient and especially the civilization of Mesopotamia	Lecture	Exam And the discussion and dialogue

4	2	Understand the lesson	Human rights in heavenly law with a focus on human rights in Islam	Lecture	Exam And the discussion and dialogue
5	2	Understand the lesson	Human rights in the Middle Ages: Human rights in doctrines - schools and basic theories Human rights companies and their advertising	Lecture	Exam And the discussion and dialogue
6	2	Understand the lesson	Human rights in contemporary and modern history International recognition of human rights since World War I and the League/United Nations	Lecture	Exam And the discussion and dialogue
7	6	Understand the lesson	Regional recognition of human rights: European Convention on Human Rights 1950 American Convention on the Rights of Human Being, 1969 African Charter For Human Rights, 1981 Charter Arab for Human Rights.	Lecture	Exam And the discussion and dialogue
8	6	Understand the lesson	NGOs and Rights Human Rights Committee (ICRC)red , ai , Human Rights Watch (HRW)	Lecture	Exam And the discussion and dialogue
9	2	Understand the lesson	National Human Rights Organizations	Lecture	Exam And the discussion and dialogue
10	2	Understand the lesson	Human rights in Iraqi constitutions between theory and reality.	Lecture	Exam And the discussion and dialogue
11+12	2	Understand the lesson	Stuck between human rights and public freedoms 1- in the Universal Declaration of Human Rights 2- in regional charters and national constitutions).	Lecture	Exam And the discussion and dialogue
13	2	Understand the lesson	Essential human rights and rights Collective human.	Lecture	Exam And the discussion and dialogue
14	2	Understand the lesson	Economic human rights Social, cultural, civil human rights and politics	Lecture	Exam And the discussion and dialogue
15	2	Understand the Lesson	Modern Human Rights: Fac in Development , Right to clean environment , Right to solidarity , Right to religion	Lecture	Exam And the discussion and dialogue

## 11. Course Evaluation

10% degrees the first month  
10 %degrees another month  
10% ratings  
70% Final

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Central Obligation, Human Rights and Democracy, Institute of Technology - Baghdad, (2015-2016).
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

## Course Description Form

1. Course Name: : concrete technology

2. Course Code: C2-1

3. Semester / Year: The first and second semester of the academic year 2023-2024

4. Description Preparation Date: 2024\2\11

5. Available Attendance Forms: Mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total): 4 theory \* 30 weeks = 120 hours Faculty

7. Course administrator's name (mention all, if more than one name)

Name: Basima Abbas Jabir

Email: basimaabbas86@gmail.com:

8. Course Objectives

**Course Objectives**

Teaching the student the basic principles of concrete components, their composition, and the different methods of pouring  
Concrete and its production in construction sites, modern types of concrete, and practical details of concrete works

9. Teaching and Learning Strategies

**Strategy**

- 1-Explanation and clarification through lectures
- 2 - Graduation Projects
- 3- Scientific visits
- 4- reports

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	The student will be able to understand the lecture paragraphs	General review of materials used in concrete. Definitions: Ordinary Concrete, Reinforced Concrete, Casting Concrete, Pre-mixed Concrete, Precast Concrete, Prestressed Concrete.	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
2	4	The student will be able to understand the lecture paragraphs	Concrete production and mixing, types of mixing, types of mixers, mixing time	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions

3	4	The student will be able to understand the lecture paragraphs	Fresh concrete properties: workability \	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
4	4	The student will be able to understand the lecture paragraphs	fresh concrete tests:, penetrati test, slump test, compaction factor test, remodeling test with vibrations and reciprocating vibrations, study of factors affecting workability	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
5	4	The student will be able to understand the lecture paragraphs	fresh concrete properties	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
6	4	The student will be able to understand the lecture paragraphs	fresh concrete properties	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
7	4	The student will be able to understand the lecture paragraphs	Effect of air spaces and method of their measurement, calculation unit weight, yield, cement factor in fresh concrete, density equation and absolute volume equation for calculating concrete components	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
8	4	The student will be able to understand the lecture paragraphs	Effect of air spaces and method of their measurement, calculation unit weight, yield, cement factor in fresh concrete, density equation and absolute volume equation for calculating concrete components	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
9	4	The student will be able to understand the lecture paragraphs	Transportation, and compaction of concrete \	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
10	4	The student will be able to understand the lecture paragraphs	Curing of concrete	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
11	4	The student will be able to understand the lecture paragraphs	concrete pumping	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
12	4	The student will be able to understand the lecture paragraphs	ready mix concrete	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
13	4	The student will be able to understand the lecture paragraphs	Hardening Concrete Resistance	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
14	4	The student will be able to understand the lecture paragraphs	Concrete Strength Tests	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
15	4	The student will be able to understand the lecture paragraphs	Factors affecting the resistance hardening concrete.	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion



					Problems and solutions
16	4	The student will be able to understand the lecture paragraphs	Concrete shrinkage	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
17	4	The student will be able to understand the lecture paragraphs	Concrete admixtures	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
18	4	The student will be able to understand the lecture paragraphs	Type of Concrete admixtures	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
19	4	The student will be able to understand the lecture paragraphs	Concrete mix design: A- American method.	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
20	4	The student will be able to understand the lecture paragraphs	Concrete mix design: B - British method.	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
21	4	The student will be able to understand the lecture paragraphs	Practical problems for design of ordinary mixtures	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
22	4	The student will be able to understand the lecture paragraphs	Practical problems for the design of mixtures containing additives	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
23	4	The student will be able to understand the lecture paragraphs	Non-destructive testing of concrete	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
24	4	The student will be able to understand the lecture paragraphs	The use of fibers in concrete	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
25	4	The student will be able to understand the lecture paragraphs	The use of polymers in concrete	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
26	4	The student will be able to understand the lecture paragraphs	Special types of concrete: block, light weight, heavy concrete, underwater concrete, precast aggregate	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
27	4	The student will be able to understand the lecture paragraphs	Special types of concrete: High Performance Concrete (HPC), High Strength Concrete (HSC), Self-compacting Concrete (SCC), Reactive Powder Concrete (RPC), Ridge Compacted Concrete (RCC).	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
28	4	The student will be able to understand the lecture paragraphs	Special types of concrete: High Performance Concrete (HPC), High Strength Concrete (HSC), Self-compacting Concrete (SCC), Reactive Powder Concrete (RPC), Ridge Compacted Concrete (RCC).	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions
29	4	The student will be able	Repair, maintenance and	Explanation and	Quick questions. Weekly

		to understand the lecture paragraphs	treatment of concrete in buildings, using some modern materials such as epoxy and carbon fibres	clarification through lectures	reports. Daily exams. discussion Problems and solutions
30	4	The student will be able to understand the lecture paragraphs	Repair, maintenance and treatment of concrete in buildings, using some modern materials such as epoxy and carbon fibres	Explanation and clarification through lectures	Quick questions. Weekly reports. Daily exams. discussion Problems and solutions

## 11. Course Evaluation

1. The first month exam (20%Theory)
2. The second month exam (20%Theory)
3. Acts of the course (10%) is taken into account attendance and participation.
4. Final exam (50%T) first-round and second round.

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Concrete Technology - Galal Bashir Sarsam, 1986
Main references (sources),	<p>1 Concrete additives, Moayad Nouri Al-Khalaf and Hana Abdel Youssef, 1991.</p> <p>2 - A.M. Neville 'Properties of Concrete'.</p> <p>3- Concrete Technology, Moayad Nouri Al-Khalaf and Hana Abdel Youssef, 1984.</p> <p>4- Concrete Technology, Shaker Ahmed Saleh and Mohamed Ayoub Sabry, 1992</p>

## Course Description Form

1. Course Name: Construction Techniques					
2. Course Code: C2-2					
3. Semester / Year: Year					
4. Description Preparation Date: 11\2\2024					
5. Available Attendance Forms: mandatory Attendance					
6. Number of Credit Hours (Total) / Number of Units (Total): 120 hours ( 4 hours per week)					
7. Course administrator's name (mention all, if more than one name)					
Name: Noor Salih Mahdi					
Email: noorsmahdi@mtu.edu.iq					
8. Course Objectives					
<b>Course Objectives</b>		<ol style="list-style-type: none"> <li>1. Linking the field of construction and construction with the field of information technologies.</li> <li>2. Standard properties of building materials.</li> <li>3. The use of heat and sound insulation materials.</li> <li>4. Different types of walls and building materials.</li> </ol>			
9. Teaching and Learning Strategies					
<b>Strategy</b>		<ol style="list-style-type: none"> <li>1- Directing distinctive questions and inquiries in depth and accuracy.</li> <li>2- Directing the student towards understanding the cause and cause.</li> <li>3- Developing the digital sense of expression.</li> <li>4- Brainstorming.</li> </ol>			
10. Course Structure					
<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>
1	4	The student understands the lesson	Planning the foundations, using surveying devices	practical	.Quick questions
2	4	The student understands the lesson	excavations, and attributing the sides of the pits	practical	Weekly reports
3	4	The student understands the lesson	Working and arming the foundation for a wall or a pillar	practical	Discussing problems and solutions

4	4	The student understands the Lesson	Presentation of a scientific film of the work of the pillars, the ty and how they work and the machi used for that	practical	.Quick questions
6-5	4	The student understands The lesson	Building works with bricks, English strapping, German strapping, other types of strapping	practical	Weekly reports
7	4	The student understands the Lesson	Building blocks (block, thermostone).	practical	Discussing problems and solutions
9-8	4	The student understands the Lesson	Wooden mold work, training making a wooden mold for a column, bridge, stairs and roofs.	practical	.Quick questions
10	4	The student understands the Lesson	Regular and reinforced concrete pouring and the use of manual banging, as well as training in mechanical batting.	practical	Weekly reports
11	4	The student understands the lesson	A scientific visit to the site of the work of a wooden mold and pouring concrete.	practical	Discussing problems and solutions
13-12	4	The student understands the lesson	Reinforcing work, reinforcing s the correct way to use it, making reinforcing models for a column, roof and bridge.	practical	.Quick questions
14	4	The student understands the lesson	Iron works, iron structural sect and aluminum sections, and w they are not available, show scientific film for that.	practical	Weekly reports
15	4	The student understands The lesson	Application Balkashi and Alstiker	practical	Discussing problems and solutions
17-16	4	The student understands The lesson	Moisture repellent works, training the use of some moisture retar materials and how to use them optimally, such as asphalt bituminous materials and according to what is available.	practical	.Quick questions
18	4	The student understands the lesson	Presentation of a scientific film on thermal insula materials: their types, how to use them their benefits	practical	Weekly reports
19	4	The student understands the lesson	Plaster work, whitewashing a wall using plaster.	practical	Discussing problems and solutions
21-20	4	The student understands the lesson	Ficus and prose works: 1. Using cement mortar. 2. Using cement mortar - Nora.	practical	.Quick questions
22	4	The student understands the lesson	Packing work Balkashi Alferfury	practical	Weekly reports
23	4	The student understands the lesson	Wall covering works, wall covering using Al-Hallan	practical	Discussing problems and solutions
24	4	The student understands the lesson	Secondary (Moroccan) ceilings, making a model of a Moroccan ceiling, training on how to instal	practical	.Quick questio

25	4	The student understands the lesson	Painting work (training on how to use it and the appropriateness of each type on the painted surface).	practical	Weekly reports
26	4	The student understands the lesson	Sanitary works: Training the student on how to lay sewage pipes, clean water pipes, and the locations of basins, bathtubs, latrines, and others.	practical	Discussing problems and solutions
27	4	The student understands the lesson	Electrical works: training the student to make the spurs and the correct termination around them and how to install some electric lamps (establishing a light point and a blackout).	practical	Quick questions
28	4	The student understands the lesson	Mechanical works: ventilation duct work (ie, refrigerated duct work)	practical	Weekly reports
30-29	4	The student understands the lesson	Road works work as a foundation under the foundation for a road (as a model)	practical	Discussing problems and solutions

## 11. Course Evaluation

- 1- The first semester is practical 20%
- 2- The second semester is practical 20%
- 3- Year-end evaluation 10%
- 4- Practical final 50%

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Building Construction
Main references (sources)	Hand book of building construction 2006
Recommended books and references (scientific journals, reports...)	Road Works Techniques Materials of Construction
Electronic References, Websites	



## Course Description Form

1. Course Name: soil mechanics

2. Course Code: C2-3

3. Semester / Year: The first and second semester of the academic year 2024-2023

4. Description Preparation Date: 2024

5. Available Attendance Forms: mandatory

6. Number of Credit Hours (Total) / Number of Units (Total): (120) hours of study at the rate of (4) hours per week

7. Course administrator's name (mention all, if more than one name)

Name: Mustafa abdulgani abdulazeez

Email: Mustafa abdulgani@mtu.edu

8. Course Objectives

**Course Objectives**

At the end of the academic year, the student will be able to

1. Soil classification
2. conducting the necessary tests for soil (field or laboratory)
3. Knowing the relationship of soil with the facilities that will be built on
4. Knowing the types of foundations and ways to determine the appropriate foundation
- 5 Estimating the risk of choosing the type of foundation

9. Teaching and Learning Strategies

Use the available programs to view the lectures And Use videos for clarification

The discussion

Ask questions

Exams

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	The student's knowledge of the components of soil and types of rocks	Definition of soil, a geological introduction to the types of rocks, how soils are formed from rocks	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
2	4	Student's knowledge of soil properties	Soil components, physical properties of soil (moisture content, porosity, void ratio, wet and dry density, saturated and submerged density, specific weight).	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
3-4	4	The student knows how to find the granular size of the soil	Soil granular analysis (sieves method and condensate method).	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
5	4	The student's knowledge of the properties of plasticity	Soil plasticity properties (liquidity limit, plasticity limit, shrinkage limit).	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
6-7	4	The student knows how soil is classified	Soil classification, using the standard classification method )Unified Classification System. (	Presentation of the lecture using the powerpoint program	Discussing and asking questions



				and displaying explanatory videos	
8-9	4	The student's knowledge of soil permeability measurement	soil permeability )Permeability ,( permeability of coarse soils, permeability of fine soils, methods of measuring them in the field and in the laboratory.	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
10	4	The student knows how stresses are calculated	Types of stresses in soil, total stress ) Total Stress (and effective stress) Effective Stress.	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
11	4	Student's knowledge The lateral soil pressure is calculated	soil lateral pressure )Lateral Earth Pressure)with an explanation of the types of filters(Filters.	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
12	4	How is the student's knowledge T .Hussein soil	improve soil propertiesSoil stability ,(the mechanical method	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
13	4	The student knows how his soil is compacted	Types of laboratory compaction tests, field compaction methods.	Presentation of the lecture using the powerpoint program and	Discussing and asking questions

				displaying explanatory videos	
14-15	4	The student knows the ways to improve the soil	Other methods for improving soil properties and stabilizing it (cement fixation, asphalt fixation, and turf fixation).	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
16-17	4	The student's knowledge of modern methods of soil improvement	Modern methods of soil stabilization (reinforcement of soil, types of materials used and method of use) )Reinforced Earth(	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
18	4	Knowledge of the student how the examination is conducted CBR	california tolerance CBR (and its importance in the implementation of roads	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
19-20	4	The student's knowledge of what is joining and its relationship to relegation	joining in soil )Consolidation (and its relationship to the occurrence of decline )Settlement.	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
21	4	The student's knowledge of the phenomenon of bloating	swelling phenomenon )Swelling (and the association ) Collapse	Presentation of the lecture using the powerpoint program and displaying	Discussing and asking questions

				explanatory videos	
22	4	The student's knowledge of the shear strength of the soil	Definition of shear strength of soil Shear Strength (and its importance in calculating the amount of soil bearing )Bearing Capacity.	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
23	4	How to know the student is an examination of the shear Allamehsour	unconfined shear examination Unconfined Compression Test	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
24	4	The student knows how to conduct a direct shear examination	direct shear check )Shear Test(Direct	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
25-26	4	The student will know how the triaxial shear examination is performed	Triaxial shear examination ) Triaxial Compression Test.	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
27	4	The student's knowledge of how field shear examinations are conducted	field shear examinations In Situ Shear Test	Presentation of the lecture using the powerpoint program and displaying explanatory	Discussing and asking questions

				videos	
28	4	Knowledge of the student how the types of foundations	Types of foundations and their relationship to the amount of soil bearing.	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
29	4	Knowledge of the student how the types of foundations	shallow foundations )Shallow Foundation and deep foundationsDeep Foundation )like pillars (Pile ).	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions
30	4	The student knows how site investigations are carried out	A simple introduction to the work of soil investigations ) Soil Exploration ,(the types of models, the method of taking them, the preparation and depth of the test pits to be implemented on site.	Presentation of the lecture using the powerpoint program and displaying explanatory videos	Discussing and asking questions

## 11. Course Evaluation

1<sup>st</sup> exam  
10 theoretical  
10 practical  
2<sup>nd</sup> exam  
10 theoretical  
10 practical  
Evaluation 10  
Final exam  
10 practical  
40 theoretical

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Field and Laboratory Examinations in Soil Mechanics and Earthworks 1966 / Issued by Makram Anwar Al-Sheikh .  Soil Engineering / Hamed Al-Saidi .  Soil mechanics / d . Excellent grain .  "Engineering properties of soils and measurement", Bowles .J .E; 2 a nd Edition. 1982
Main references (sources)	<b>Davis, T.</b> (2008), "Geotechnical testing, observation, and documentation", 2nd ed. American Society of Civil Engineers (ASCE).Virginia <b>ASTM</b> (1995), "American Society for Testing and materials", Annual book of ASTM standards. Section 4, Construction. Soil and Rock, Vol. 408. ASTM, Philadelphia, PA
Recommended books and references (scientific journals, reports...)	All published research related to soil mechanics
Electronic References, Websites	Google scholar



## Course Description Form

<b>1. Course Name:</b>	
Civil Drawing	
<b>2. Course Code:</b>	
C2-4	
<b>3. Semester / Year:</b>	
2023-2024	
<b>4. Description Preparation Date:</b>	
1/2/2024	
<b>5. Available Attendance Forms: Attendance is mandatory</b>	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
1theory + 5 practical )* 30 weeks = 180 hours Faculty	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Fatima Asaad Tayeb Email: fm.alkobaisi@gmail.com	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	1) Introducing the student to how to prepare and produce structural, sanitary, architectural and executive maps.
	2) Introducing the student to how to understand executive and construction maps.
	3) Introducing the student to modern methods of drawing.
	4) students acquire the skills to resolve issues.
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>• Theoretical lectures.</li> <li>• Using and touching modern electronic programs.</li> <li>• Scientific films.</li> <li>• Systematic training</li> </ul>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Assessment Method
1	1T+5P	The student understands the lesson	Introduction to structural drawing, architectural and idiomatic symbols, lines in maps, drawing models for building and construction materials, drawing scale, executive maps and types of brick and block construction.	Theoretical Lecture+ training	Discussion and training
2	1T+5P	The student understands the lesson	Drawing the horizontal plan of a residential house or small building and the first floor plan and determining the longitudinal and transverse sections and facades.	Theoretical Lecture+ training	Discussion and training
3	1T+5P	The student understands the lesson	Drawing longitudinal and transverse sections and detailed sections of the finishing layers for floors, ceilings and flatness.	Theoretical Lecture+ training	Discussion and training
4	1T+5P	The student understands the lesson	An introduction to the sanitary drawing and structures of water and sanitary installations and sanitary furniture, and then drawing the network of water and sanitary installations for the previous horizontal plans.	Theoretical Lecture+ training	Discussion and training
5	1T+5P	The student understands the lesson	Drawing the structural details of the inspection basins and linking them with the health establishments network.	Theoretical Lecture+ training	Discussion and training
6	1T+5P	The student understands the lesson	Drawing the structural details of the septic tanks and storage (sink) annexed to the house plan.	Theoretical Lecture+ training	Discussion and training
7	1T+5P	The student understands the lesson	Introduction to concrete and construction principles. Concrete bearing with different types of stresses, necessary reinforcing steel and its types, and drawing symbols used in maps and construction details.	Theoretical Lecture+ training	Discussion and training
8	1T+5P	The student understands the lesson	Concrete slabs of all kinds, the transfer of loads through them and the necessary reinforcement for them, with drawing the structural details of the one-way solid slabs.	Theoretical Lecture+ training	Discussion and training
9	1T+5P	The student understands the lesson	Drawing structural details of two-way solid slabs.	Theoretical Lecture+ training	Discussion and training
10	1T+5P	The student understands the lesson	Drawing structural details of one-way and two-way polygon slabs.	Theoretical Lecture+ training	Discussion and training
11	1T+5P	The student understands the lesson	Introduction / types of concrete joists and drawing the structural details of simple joists with sections.	Theoretical Lecture+ training	Discussion and training



12	1T+5P	The student understands the lesson	Drawing structural details for continuous tributaries and sections.	Theoretical Lecture+ training	Discussion and training
13	1T+5P	The student understands the lesson	Drawing the structural details of single tributaries with their sections.	Theoretical Lecture+ training	Discussion and training
14	1T+5P	The student understands the lesson	Introduction with drawing of structural details of prestressed precast joists.	Theoretical Lecture+ training	Discussion and training
15	1T+5P	The student understands the lesson	Drawing a horizontal scheme (key) for the joists of a structural building and fixing the schedules and details of the joists.	Theoretical Lecture+ training	Discussion and training
16	1T+5P	The student understands the lesson	Drawing the structural details of the types of concrete columns, drawing the longitudinal and transverse sections, and showing the reinforcement of the columns.	Theoretical Lecture+ training	Discussion and training
17	1T+5P	The student understands the lesson	Drawing structural details and vertical sections to illustrate the bonding of reinforcing steel to the columns of successive floors.	Theoretical Lecture+ training	Discussion and training
18	1T+5P	The student understands the lesson	An introduction to the foundations / their types and the principle of their work, and drawing the structural details of the single, common foundation, the foundations of the walls.	Theoretical Lecture+ training	Discussion and training
19	1T+5P	The student understands the lesson	Drawing the structural details of the continuous foundations and the mat foundations.	Theoretical Lecture+ training	Discussion and training
20	1T+5P	The student understands the lesson	Drawing the structural details of the foundations of the pillars and their types with the hat.	Theoretical Lecture+ training	Discussion and training
21	1T+5P	The student understands the lesson	Identifying concrete staircases and their types, straight staircase, straight halves of staircase, spiral staircase, with drawing of constructional details.	Theoretical Lecture+ training	Discussion and training
22	1T+5P	The student understands the lesson	Drawing structural details of joints in buildings, expansion joints, structural joints.	Theoretical Lecture+ training	Discussion and training
23	1T+5P	The student understands the lesson	Drawing the structural details of the armed walls of the elevators and the walls of the basements.	Theoretical Lecture+ training	Discussion and training
24	1T+5P	The student understands the lesson	Introduction to factory and ready construction and drawing of structural details to connect walls with prefabricated ceilings.	Theoretical Lecture+ training	Discussion and training
25	1T+5P	The student understands the lesson	Introduction to steel structures, their sections, tables and how to obtain specifications and details of sections from them.	Theoretical Lecture+ training	Discussion and training
26	1T+5P	The student understands the lesson	Drawing the structural details for the interconnection of the steel parts according to their load bearing.	Theoretical Lecture+ training	Discussion and training

27	1T+5P	The student understands the lesson	The interconnection of the foundations and steel bases, the interconnection of the steel columns, the interconnection of the joists with each other.	Theoretical Lecture+ training	Discussion and training
28	1T+5P	The student understands the lesson	Details of the steel gable drawing and the interconnection of its ribs.	Theoretical Lecture+ training	Discussion and training
-29 30	1T+5P	The student understands the lesson	The use of the computer and its applications in the structural drawing of reinforced concrete structures.	Theoretical Lecture+ training	Discussion and training

## 10. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 11. Learning and Teaching Resources

Required textbooks (curricular books, if any)	The Institute's library for additional curricular resources..
Main references (sources)	Drawing and civil construction / Muhammad Rashad Al-Din Structural and civil drawing / Talal Abdel Rahim
Recommended books and references (scientific journals, reports...)	Books in the central library Other internet resources related to construction drawing and its details
Electronic References, Websites	Websites And Other internet resources related to construction drawing and its detail..

## Course Description Form

<b>1. Course Name:</b>	
Surveying 2	
<b>2. Course Code:</b>	
C2-5	
<b>3. Semester / Year:</b>	
2023 – 2024	
<b>4. Description Preparation Date:</b>	
2024	
<b>5. Available Attendance Forms:</b>	
Students in second stage	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
(90) hours and (6) units	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Jabbar Hassoon Hasan Email: jabbar.hasson@mtu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"><li>• Familiarize students with angles and directions and use them to find the coordinates of points</li><li>• How to raise or erase a specific area using polygons and directions</li><li>• Knowing the properties of horizontal and vertical angles.</li><li>• Introduce the student to vertical and amplitude curves and ways to project them</li><li>• Introducing the student to modern surveying devices and methods of working on them</li></ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	1- Asking questions and inquiries that are distinguished by depth and accuracy. 2- Directing the student towards understanding the cause and reason. 3- Developing a digital sense of expression. 4- Brainstorming.

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Identify the theodolite device / its parts, its uses, types, set up the device, read the horizontal and vertical directions of different types.		Theory and Practical	1. Quick questions. 2. Weekly reports. 3. Daily exams. 4. Discussing problems and solutions
2	3	Examine and adjust the theodolite for all types of vertical and horizontal examinations, then find the device's constant.		Theory and Practical	
3	3	Methods of measuring horizontal angles with a theodolite.		Theory and Practical	
4	3	Traverse , types of traverses, their purposes and uses.		Theory and Practical	
5	3	Measure and correct the interior horizontal angles of a closed traverses.		Theory and Practical	
6	3	Methods for measuring the horizontal distances of the sides of a traverses.		Theory and Practical	
7	3	Draw closed and open traverses.		Theory and Practical	
8	3	Survey the traverses with theodolite and tape.		Theory and Practical	
9	3	Calculating the departures and the latitudes of the sides of th traverses and calculating the coordinates.		Theory and Practical	
10	3	Calculating the departures , the latitudes and the coordinates of the sides of the open traverses.		Theory and Practical	
11	3	Methods of measuring vertical angles with theodolite device.		Theory and Practical	
12	3	Finding the height of a building (target) that can be reached using the theodolite device		Theory and Practical	
13	3	Finding a building height (target) that cannot be reached by using the theodolite		Theory and Practical	
14	3	Finding the height of a building (target) by measuring three angles of elevation or depression with a theodolite		Theory and Practical	
15	3	Measure the length of an inaccessible building - measure the horizontal angle between two walls.		Theory and Practical	
16	3	Curves / types		Theory and Practical	
17	3	Horizontal curves (elements of the simple circular curve) and the equations used in designing the simple circular curve.		Theory and Practical	
18	3	Methods of projecting horizontal curves / method of tangent columns (Baker's method) - method of hypotenuses (offsets) - method of dividing the strings - method of angles of deviation		Theory and Practical	
19	3	Projection of curves using two theodolite devices.		Theory and Practical	
20	3	Draw a road with its horizontal curves.		Theory and Practical	

21	3	Convex and concave principal curves / Components / Calculation of the length of the vertical curve	Theory and Practical
22	3	Vertical curve calculations.	Theory and Practical
23	3	Triangulation, its purposes, its use, the selection of triangulation points, triangulation networks.	Theory and Practical
24	3	Measure the base line for the triangulation and the work of the fortifications to measure the tape.	Theory and Practical
25	3	Measuring the horizontal angles of the triangulation network, calculations and making the necessary fortifications.	Theory and Practical
26	3	Tachometric survey, types of tachometers.	Theory and Practical
27	3	Learn about modern electronic measuring devices and how to use them to measure horizontal and vertical distances.	Theory and Practical
28	3	A general project on the construction of a road or a drainage channel with the calculation of the soil needed to complete the project with its horizontal and vertical curves	Theory and Practical
29-30	3	An introduction to the device of the Shamah station. The use of the comprehensive station device in measuring the lengths of the sides of a polygon, internal angles and coordinates	Theory and Practical

### 11. Course Evaluation

First Exam	Second Exam	assessment	Final Exam
<b>10 degrees practical</b>	<b>10 degrees practical</b>	<b>10 degrees</b>	<b>10 degrees practical</b>
<b>10 degrees theory</b>	<b>10 degrees theory</b>		<b>40 degrees theory</b>

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	المساحة المستوية والطوبوغرافية المساحة العملي
Main references (sources)	المساحة الهندسية
Recommended books and references (scientific journals, reports...)	<b>Surveying principles and application</b>
Electronic References, Websites	

## Course Description Form

<b>1. Course Name:</b>					
Construction machines					
<b>2. Course Code:</b>					
C2-6					
<b>3. Semester / Year:</b>					
The first and second semester 2023 – 2024					
<b>4. Description Preparation Date:</b>					
2024					
<b>5. Available Attendance Forms:</b>					
Students in second stage					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
(60) hours and (4) units					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Dr. Hussein Hafudh Email: hussein.humaish@mtu.edu.iq					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>			1. Choosing the appropriate construction machine for work 2. Determining the productivity of the machines 3. Supervising the completion of work		
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		1. The discussion 2. Ask questions 3. Exams			
<b>10. Course Structure</b>					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	The student's knowledge of the importance of machines and ways to obtain them	the , Construction equipment importance of methods of ,machines and the , obtaining them advantages and disadvantages of owning or renting machines, with a scientific .film showing	Presentation ppt and videos	Discussing and asking questions
2	2	The student's knowledge	Calculating the	Presentation	Discussing a

		calculating the costs of owning construction machinery	ownership and costs machines (depreciation of costs, investment, maintenance and repair)	ppt and videos	asking questions
3	2	The student's knowledge of calculating the costs of owning construction machinery	Completing the calculation of costs and ownership of machines, operating costs (fuel costs, oil costs, an explanation of an integrated mathematical question about calculating all costs)	Presentation ppt and videos	Discussing and asking questions
4	2	The student's knowledge special and standard of machines	Special machines, standard machines, and comparison with the between them presentation of a scientific film	Presentation ppt and videos	Discussing and asking questions
5	2	The student's knowledge engineering of the foundations of machinery works	Engineering foundations for engineering machinery including (resistance , works to movement and the effect of tilt)	Presentation ppt and videos	Discussing and asking questions
6	2	The student's knowledge of the engineering foundations of machinery works	Complementing the engineering foundations for engineering machinery works (the effect of height, swelling and contraction of the soil at the expense of volumes)	Presentation ppt and videos	Discussing and asking questions
7	2	The student's knowledge dozer construction of the machine and its importance	including: ,The quarry (Dozer description of the machine, its types, productivity with a scientific ( calculation film showing	Presentation ppt and videos	Discussing and asking questions
8	2	The student's knowledge of the structural machine loading shovel of the its importance and	Loading shovel (Shovel) and includes (types, difference between them, productivity calculation, work cycle, work coordination) with two scientific films	Presentation ppt and videos	Discussing and asking questions
9	2	To view the construction machinery	to one of the A scientific visit business sites machines different where available are	Presentation ppt and videos	Discussing and asking questions
10	2	Student's knowledge drilling machines of	Drilling machines, universal drilling facial ,drilling rig with a scientific film rig presentation	Presentation ppt and videos	Discussing and asking questions
11	2	Student's knowledge of drilling machines	backhoe ) Digging machines shovel, oyster , shovel hydronic with a scientific film ( shovel showing	Presentation ppt and videos	Discussing and asking questions



12	2	The student's knowledge of the different types of transportation machines	Machinery and transport road trucks and paved , units paved, classification - non trucks according of multiple factors, tippers, to calculated productivity is presentation of with the . scientific film a	Presentation ppt and videos	Discussing and asking questions
13	2	The student's knowledge of the different types of transportation machines	Balancing the number of tippers with the size of drilling machines, lorries, locomotives and trailers, and .railway trucks	Presentation ppt and videos	Discussing and asking questions
14	2	The student's knowledge stands and their of the types	The stands include (their types and benefits with the calculation of productivity) with the presentation of a . scientific film	Presentation ppt and videos	Discussing and asking questions
15	2	knowledge student's The types of skimmers of the and their benefits	Skimmers, their types, and productivity benefits with a scientific ,calculation . film showing	Presentation ppt and videos	Discussing and asking questions
16	2	Knowing the resistance student's calculating the to productivity of skimming	The productivity of the skimmer the use of the skimmer performance chart in .calculating the productivity	Presentation ppt and videos	Discussing and asking questions
17	2	To view the construction machinery	to a business A scientific visit site with a scientific film . showing	Presentation ppt and videos	Discussing and asking questions
18	2	Student's knowledge soil compacting of machines	Soil compaction machines and their importance, types, places of use, with a scientific . film showing	Presentation ppt and videos	Discussing and asking questions
19	2	Student's knowledge of soil compacting machines	Complementing the Complementary Machines and Calculating Productivity, Theory of Pressure Bulb for .Weight Distribution	Presentation ppt and videos	Discussing and asking questions
20	2	Student's knowledge of soil compacting machines	Supplementation of the vibratory rollers, the production of the rollers	Presentation ppt and videos	Discussing and asking questions
21	2	The student's knowledge available equipment of the for mixing concrete	Material mixing equipment with a for concrete works . scientific film presentation	Presentation ppt and videos	Discussing and asking questions
22	2	The student's knowledge equipment for of the transporting, stacking and polishing concrete	conveying Concrete . equipment compacting and	Presentation ppt and videos	Discussing and asking questions
23	2	The student's of the asphalt knowledge production factor and its	Asphalt production plants .types and specifications	Presentation ppt and videos	Discussing and asking questions



		importance			
24	2	The student's knowledge of the specifications and types of mattresses	Specifications of brushes for asphalt, speed of brushes, types of brushes with a . scientific film presentation	Presentation ppt and videos	Discussing and asking questions
25	2	asphalt To view production plants	to the A scientific visit . asphalt production plants	Presentation ppt and videos	Discussing and asking questions
26	2	The student's knowledge trenches and their types of	Almkhandqat types, calculate rates the with Yeh production of scientific presentation of a the . film	Presentation ppt and videos	Discussing and asking questions
27	2	The student's knowledge spending and its of importance	Tunnels, their importance, types with a scientific film . showing	Presentation ppt and videos	Discussing and asking questions
28	2	The student's knowledge methods of of the available tunneling	Digging tunnels with mechanical excavators, ventilating tunnels with a . scientific film showing	Presentation ppt and videos	Discussing and asking questions
29	2	Student's knowledge conveyor belts of	calculating , Conveyor belts transportation costs of Parts belts conveyor by conveyor belts	Presentation ppt and videos	Discussing and asking questions
30	2	The student's knowledge modern systems to of control construction machinery	The use of modern control systems in the construction machinery with a presentation .of a scientific film of its own	Presentation ppt and videos	Discussing and asking questions

### 11. Course Evaluation

2

	First Exam	Second Exam	assessment	Final Exam	
	10 degrees	10 degrees	10 degrees	50 degrees	2

### 12. Learning and Teaching Resources

2

Required textbooks (curricular books, if any)	Construction machinery / Adnan Al-Dahan
Main references (sources)	construction road planning and equipment / Part One / Dr. Muhammad Ayoub Al-Azi Quantitative Surveying / Salma Farhan Builders equipment / d .Muhammad Ayoub Al-Ezzi
Recommended books and references (scientific journals, reports...)	All research and sources related to construction machinery
Electronic References, Websites	

## Course Description Form

1. Course Name: Computer principles	
2. Course Code: C2-7	
3. Semester / Year: Year	
4. Description Preparation Date: 15/2/2024	
5. Available Attendance Forms: In presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
90 hours of study, 1 theoretical hour and 2 practical hours per week	
7. Course administrator's name (mention all, if more than one name)	
Name: Zainab salim abd ulsayed Email : <a href="mailto:zainabsalim10@mtu.edu.iq">zainabsalim10@mtu.edu.iq</a>	
8. Course Objectives	
<b>Course Objectives; At the end of the Academic year, the student should be able to:-</b>	<b>1-Operating the AutoCAD program and using it for drawing.</b> <b>2- Run the AutoCAD program and use it in Drawing.</b> <b>3- The student can adjust the drawing interface settings.</b> <b>4- Teaching the student how to use ready-made systems and their applications in completing civil fees.</b>
9. Teaching and Learning Strategies	

<b>Strategy</b>	<p>Teaching and learning methods</p> <p>1 - Objective questions are divided into: multiple choice questions, true and false questions, or comparison questions.</p> <p>2 - Self-evaluation and peer evaluation.</p> <p>3- Tests include:</p> <p>A - Formative achievement tests accompanying teaching plans.</p> <p>B - The final achievement tests include:</p> <ul style="list-style-type: none"> <li>● Monthly final exams at the end of each academic month.</li> <li>● Semester final exams at the end of a semester.</li> <li>● Final final exams at the end of the academic year.</li> </ul>
	<p>Evaluation methods</p> <p>1- Using achievement tests:</p> <ul style="list-style-type: none"> <li>● Daily</li> <li>● Monthly</li> <li>● Quarterly</li> <li>● Final</li> </ul>
	<p>C- Emotional and value goals</p> <ul style="list-style-type: none"> <li>- Proposing new ideas about the topic by the student.</li> <li>-The student's ability to evaluate the topic and give solutions.</li> <li>- Differentiate between problems.</li> <li>- Explains and analyzes phenomena and problems</li> </ul>
	<p>Teaching and learning methods:</p> <p>1 - Use the presentation and presentation method.</p> <p>2- Drawing illustrative diagrams.</p> <p>3- Brainstorming method.</p>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	The student understands the lesson	1-Auto CAD program: running the program and general concepts (running the program, getting to know the program's workspace, display cube, steering wheel, display movement, menus, toolbars, closing the program)	In-person education	A theoretical and practical lecture
2	3	The student understands the lesson	2-Open a previous drawing file, control the display of the contents of the drawing file using the Zoom command and its options, the Pan command, close the drawing file, create a new file, save the file - Preparing the drawing board - Units command and Limits command	In-person education	A theoretical and practical lecture

3	3	The student understands the lesson	Draw commands (Point, Line, formulas for defining point coordinates, Multiline) - Drawing commands (Polyline, Rectangle, Polygon) - Sectors and Hatch	In-person education	A theoretical and practical lecture
4	3	The student understands the lesson	Drawing commands (Circle, Arc, Ellipse) - Text writing commands (Single line text, Multiline text, creating new style models for writing	In-person education	A theoretical and practical lecture
5	3	The student understands the lesson	Types of drawing lines and their uses - Control drawing specifications (Line type, Line weight, Color) - Modify the properties of the drawing lines	In-person education	A theoretical and practical lecture
6	3	The student understands the lesson	Drawing geometric shapes - Implementing the basic shapes	In-person education	A theoretical and practical lecture
7	3	The student understands the lesson	Modify commands (Mirror, Array, Scale, Break, Extend)	In-person education	A theoretical and practical lecture

8	3	The student understands the lesson	-Modify commands (Fillet, Chamfer, Trim, Explode)	In-person education	A theoretical and practical lecture
9	3	The student understands the lesson	How to add dimensions (Linear Dim., Aligned Dim., Radial Dim., Diameter) Dim., Angular Dim., Quick Dim., Baseline Dim., Continuous Dim., Dimension Style	In-person education	A theoretical and practical lecture
10	3	The student understands the lesson	Drawing different geometric shapes - Drawing exercise (test)	In-person education	A theoretical and practical lecture
11	3	The student understands the lesson	Drawing applications on geometric shapes - Drawing an exercise test	In-person education	A theoretical and practical lecture
12	3	The student understands the lesson	Drawing a building map	In-person education	A theoretical and practical lecture
13	3	The student understands the lesson	Drawing stairs	In-person education	A theoretical and practical lecture
14	3	The student understands the lesson	Drawing foundations - Drawing an exercise (test)	In-person education	A theoretical and practical lecture

15	3	The student understands the lesson	Drawing three-dimensional shapes - Drawing exercise (test)	In-person education	A theoretical and practical lecture
16	3	The student understands the lesson	Drawing 3D shapes Exercise drawing (test)	In-person education	A theoretical and practical lecture
17	3	The student understands the lesson	Applications on commands extrude,revolve	In-person education	A theoretical and practical lecture
18	3	The student understands the lesson	Applications to union and subtract orders	In-person education	A theoretical and practical lecture
19	3	The student understands the lesson	Complete solid editing commands	In-person education	A theoretical and practical lecture

20	3	The student understands the lesson	Create a simple building in three dimensions	In-person education	A theoretical and practical lecture
21	3	The student understands the lesson	Making a model of a horizontal section in a residential building	In-person education	A theoretical and practical lecture
22	3	The student understands the lesson	Thermal insulation techniques	In-person education	A theoretical and practical lecture
23	3	The student understands the lesson	Concrete formwork (types, requirements, components)	In-person education	A theoretical and practical lecture
24	3	The student understands the lesson	Lifting the formwork, the reasons that lead to the collapse of the formwork	In-person education	A theoretical and practical lecture
25	3	The student understands the lesson	Scaffolds (types, components, safety factors)	In-person education	A theoretical and practical lecture



26	3	The student understands the lesson	Secondary ceilings (types and methods of installing them) and installing air ducts	In-person education	A theoretical and practical lecture
27	3	The student understands the lesson	- Doors and windows (types, requirements, components)	In-person education	A theoretical and practical lecture
28	3	The student understands the lesson	Joints in manufactured construction, their types and components	In-person education	A theoretical and practical lecture
29	3	The student understands the lesson	Methods of transportation in buildings, stairs, and elevators	In-person education	A theoretical and practical lecture
30	3	The student understands the lesson	Fire resistance of buildings and fire control systems	In-person education	A theoretical and practical lecture

## 11. Course Evaluation

First semester: 10% theoretical + 10% practical = 20%

Second semester: 10% theoretical + 10% practical = 20%

End of year evaluation 10%

Final work 50%

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Abdul Rasoul Al-Khafaf, Engineering Drawing, 1990 2- Dr. Khader Al-Abadi, Cartography, Map Locations, 1980, Baghdad 3- Tujan Saleh Al-Jaghbir, Basics of AutoCAD, 2012, Amman
Main references (sources)	AutoCAD© smart book First edition By: Mostafa Abd El-Basset Faculty of Engineering El Minya University
Recommended books and references (scientific journals, reports...)	1-Iraqi Journal of Industrial Research 2-Al-Iraqia Journal for Scientific Engineering Research 3-Iraqi Journal of Oil and Gas Research
Electronic References, Websites	1- <a href="http://civilglobal.com">http://civilglobal.com</a> 2-Different sites for AutoCAD drawings

## Course Description Form

<b>1. Course Name:</b>					
Quantity Surveying					
<b>2. Course Code:</b>					
C2-8					
<b>3. Semester / Year:</b>					
The first and second semester 2023 – 2024					
<b>4. Description Preparation Date:</b>					
2024					
<b>5. Available Attendance Forms:</b>					
Students in second stage					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
(90) hours and (6) units					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Dr. Hussein Hafudh Email: hussein.humaish @mtu.edu.iq					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>			<ul style="list-style-type: none"> <li>Calculating the amount of construction items involved in the implementation of Construction and buildings</li> <li>Knowledge of calculating prices, costs, and managing engineering projects</li> </ul>		
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		<ol style="list-style-type: none"> <li>1. The discussion</li> <li>2. Ask questions</li> <li>3. Exams</li> </ol>			
<b>10. Course Structure</b>					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	The student will be able to understand the lecture paragraphs	estimation and the main purpose of estimation	Explanation and clarification through lectures	Reports
2	3	The student will be able to understand the lecture paragraphs	Type of estimation	Explanation and clarification	Reports

				n through lectures	
3	3	The student will be able to understand the lecture paragraphs	Calculating the amount of construction work for the foundations of buildings.	Explanation and clarification through lectures	Reports
4	3	The student will be able to understand the lecture paragraphs	Calculating the amount of construction work for the foundations of buildings.	Explanation and clarification through lectures	Reports
5	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of construction work under the D.P.C	Explanation and clarification through lectures	Reports
6	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of construction work under the D.P.C	Explanation and clarification through lectures	Reports
7	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of construction work above the D.P.C	Explanation and clarification through lectures	Reports
8	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of construction work above the D.P.C	Explanation and clarification through lectures	Reports
9	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of concrete, reinforcement, and wooden form for foundations	Explanation and clarification through lectures	Reports
10	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of concrete, reinforcement, and wooden form for foundations	Explanation and clarification through lectures	Reports
11	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of concrete, reinforcement, and wooden form for beam	Explanation and clarification through lectures	Reports
12	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of concrete, reinforcement, and wooden form for beam	Explanation and clarification through	Reports

				lectures	
13	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of concrete, reinforcement, and wooden form for column	Explanation and clarification through lectures	Reports
14	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of concrete, reinforcement, and wooden form for arch	Explanation and clarification through lectures	Reports
15	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of concrete, reinforcement, and wooden form for slab	Explanation and clarification through lectures	Reports
16	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of concrete, reinforcement, and wooden form for slab	Explanation and clarification through lectures	Reports
17	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of concrete, reinforcement, and wooden form for stairs	Explanation and clarification through lectures	Reports
18	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of secondary slabs work	Explanation and clarification through lectures	Reports
19	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of finishing work (spray walls)	Explanation and clarification through lectures	Reports
20	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of finishing work (spray walls)	Explanation and clarification through lectures	Reports
21	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of flooring work	Explanation and clarification through lectures	Reports
22	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of electrical and mechanical installations work	Explanation and clarification through lectures	Reports

23	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of water and sanitary installations works	Explanation and clarification through lectures	Reports
24	3	The student will be able to understand the lecture paragraphs	Calculation of the amount of construction work for the precast building	Explanation and clarification through lectures	Reports
25	3	The student will be able to understand the lecture paragraphs	Calculating the quantity of some works and construction paragraphs of steel structures	Explanation and clarification through lectures	Reports
26	3	The student will be able to understand the lecture paragraphs	Contracts and Contracting	Explanation and clarification through lectures	Reports
27	3	The student will be able to understand the lecture paragraphs	Engineering project management	Explanation and clarification through lectures	Reports
28	3	The student will be able to understand the lecture paragraphs	Project scheduling	Explanation and clarification through lectures	Reports
29	3	The student will be able to understand the lecture paragraphs	Project scheduling	Explanation and clarification through lectures	Reports
30	3	The student will be able to understand the lecture paragraphs	Using the computer to calculate the structural paragraphs	Explanation and clarification through lectures	Reports

#### 11. Course Evaluation

2

First Exam	Second Exam	assessment	Final Exam
10 degrees practical	10 degrees practical	10 degrees	10 degrees practical
10 degrees theory	10 degrees theory		40 degrees theory

2

#### 12. Learning and Teaching Resources

2

Required textbooks (curricular books, if any)	1- Quantitative Survey / Muwaffaq Nasser / Saour / Ministry of Education / Institution Technical Institutes
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Main references (sources)	
Recommended books and references (scientific journals, reports...)	<p>1- Quantitative Survey / Sami Miri Kathem, Abdul Karim Al-Shamaa / Ministry of Education / Technical Institutes Authority, 1994.</p> <p>2 Structural materials / Jalal Bashir Sarsam / Ministry of Education / Technical Institutes Authority, 1992. 4</p> <p>3 Estimation and specifications of construction works / Ghanem Abdul Rahman Bakr, 1985</p>
Electronic References, Websites	

## Course Description Form

1. Course Name: Buildings and Factory Construction					
2. Course Code: C2-9					
3. Semester / Year: Year					
4. Description Preparation Date: 2024					
5. Available Attendance Forms: mandatory Attendance					
6. Number of Credit Hours (Total) / Number of Units (Total): 120 hours ( 2 hours per week)					
7. Course administrator's name (mention all, if more than one name)					
Name: عبد الخالق كمال محمود					
Email:					
8. Course Objectives					
At the end of the academic year, the student will be able to organize the site, direct the works and supervise their implementation, and the student will learn the basic principles and supervise factory building.					
9. Teaching and Learning Strategies					
<b>Strategy</b>	<p>1 Preparation and implementation of research and projects by students within the vocabulary of buildings and factory construction and presented in annual student conferences.</p> <p>2 Training students (summer training) at the relevant government institutions to gain students sufficient skills and prepare them for a job well.</p> <p>3 Develop and update the vocabulary of buildings and factory building to keep.</p>				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	The student understands the lesson	Introduction to construction projects implementation methods related parties tasks of each of the construction project team members, especially technicians.	theoretical lectures	Discussion
2	2	The student understands the lesson	Organizing and planning the v site and the factors that affect	theoretical lectures	Discussion



			along with preparing a plan for work site for a specific project		
3	2	The student understands the lesson	Earthen excavations, methods supporting the sides of excavation, digging the basements	theoretical lectures	Discussion
4	2	The student understands the Lesson	Techniques used to extract groundwater during construction	theoretical lectures	Discussion
5	2	The student understands The lesson	Dirt spells and the correct ways to them Layers of roads and ways to implement them	theoretical lectures	Discussion
6	2	The student understands the Lesson	Moisture repellent layers basements and walls, flatness	theoretical lectures	Discussion
7	2	The student understands the Lesson	Building walls with bricks, types of bricks, bonding methods, seams	theoretical lectures	Discussion
8	2	The student understands the Lesson	Building walls with stone (types of stone preparation, types of fasteners, joints)	theoretical lectures	Discussion
9	2	The student understands the lesson	Building walls with building blocks (types of blocks and their specifications).	theoretical lectures	Discussion
10	2	The student understands the lesson	Techniques for finishing walls from the inside of all kinds.	theoretical lectures	Discussion
11	2	The student understands the lesson	Techniques for finishing walls from the outside of all kinds.	theoretical lectures	Discussion
12	2	The student understands The lesson	Flooring methods for the ground floor, other floors and ceilings.	theoretical lectures	Discussion
13	2	The student understands The lesson	thermal insulation techniques	theoretical lectures	Discussion
14	2	The student understands the lesson	Concrete Forms (Types, Requirements, Components)	theoretical lectures	Discussion
15	2	The student understands the lesson	Lifting molds, causes of mold failure, sliding molds and related techniques	theoretical lectures	Discussion
16	2	The student understands the lesson	Scaffolding (types, components, safety factors)	theoretical lectures	Discussion
17	2	The student understands the lesson	Secondary ceilings (types, methods of installation) installation of air ducts	theoretical lectures	Discussion
18	2	The student understands the lesson	Sanitary installations (pure water, sewage), types of pipes used for each, and methods of connection and installation.	theoretical lectures	Discussion
19	2	The student understands the lesson	Doors and windows (types, requirements, components)	theoretical lectures	Discussion
20	2	The student understands the lesson	Joints in buildings (structural joints, expansion joints) details of each type and methods of implementation	theoretical lectures	Discussion
21+22	2	The student understands the lesson	Low-cost construction and cost-saving methods (objectives, requirements, construction methods)	theoretical lectures	Discussion
23	2	The student understands the lesson	Factory construction (properties, requirements)	theoretical lectures	Discussion
24	2	The student understands the lesson	The different types of factory building and the characteristics of each type	theoretical lectures	Discussion

25	2	The student understands the lesson	Factory Building Factory Components and Production Methods	theoretical lectures	Discussion
26+27	2	The student understands the lesson	Details of the structural members the factory building and their installation methods	theoretical lectures	Discussion
28	2	The student understands the lesson	Joints in factory construction (types, components, methods of implementation)	theoretical lectures	Discussion
29	2	The student understands the lesson	Methods of moving in buildings, stairs, elevators (types, components, construction methods)	theoretical lectures	Discussion
30	2	The student understands the lesson	Fire resistance of buildings and fire control systems.	theoretical lectures	Discussion

## 11. Course Evaluation

- 1- The first semester is practical 20%
- 2- The second semester is practical 20%
- 3- Year-end evaluation 10%
- 4- Practical final 50%

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• Civil Engineering / Mr. Bassiouni
Main references (sources)	• Construction of buildings / Zuhair Sako
Recommended books and references (scientific journals, reports...)	• Building materials / Ahmed Abu Odeh
Electronic References, Websites	Other sources on the internet