

**Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department**



Academic Program and Course Description Guide

2025

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: AL-Furat Al-Awsat Technical University

Faculty/Institute: Babylon Technical Institute

Scientific Department: Civil Technologies Department

Academic or Professional Program Name: Civil Technology Diploma

Final Certificate Name: Technical Diploma

Academic System: Yearly

Description Preparation Date: 3/11/2024

File Completion Date: 12/1/2025

Signature: 

Head of Department Name:

Prof. Dr. Arkan Radi Ali

Date: 9/2/2025

Signature: 

Scientific Assistante Name:

Assist. Prof. Dr. Oras Khadhayer Obayes

Date:

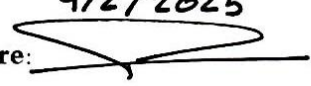
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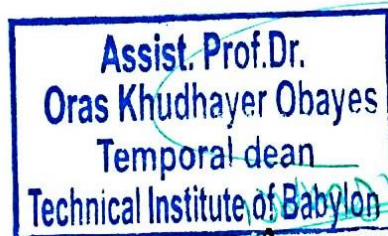
Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Division:

Assist. prof. Khansaa Azeez Obayes

Date: 9/2/2025

Signature: 



Approval of the Dean

1. Program Vision

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available opportunities.

2. Program Mission

It is mainly focused on preparing technical staff to be a link between the civil engineer and the skilled worker and training and preparing the graduate by providing him with theoretical, applied and practical information to be able to carry out the work entrusted to him, as the Department of Civil Technologies seeks to provide scientific services through which it acquires a distinguished position as a leading department that provides engineering and technical programs and high-quality services while providing a recognized distinguished educational environment so that graduates have high professionalism and basic technical education through which they can contribute Effectively in serving their community.

3. Program Objectives

The specialization of the building and construction branch aims to graduate qualified technical staff to carry out the implementation of civil works Conducting laboratory and field tests, implementing maps and surveys, and calculating quantities and arms of projects Civil works.

As for the road construction branch, it aims to prepare and graduate technical staff specialized in road projects Such as monitoring the implementation of road projects and field survey works and conducting asphalt, soil and mixtures tests of road layers with quality control.

4. Program Accreditation

There isn't

5. Other external influences

There isn't

6. Program Structure

Program Structure	Percentage	Unit of study	Number of Courses	Notes
Requirements of the Institution	10.57	24	12	Annual study system

Institute Requirements	30.77	72	12	Annual study system
Department Requirements	58.98	138	32	Annual study system
Summer Training	/	/	/	Fulfillment
Other	/	/	/	

* It can include notes whether the course is basic or optional.

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First / building and construction	There isn't	Construction Materials	2	2
	There isn't	Engineering Mechanics	2	1
	There isn't	Surveying (1)	2	2
	There isn't	Concrete Materials	1	2
	There isn't	Mathematics	3	-
	There isn't	Computer and Artificial Intelligence (1)	1	1
	There isn't	Engineering Drawing	-	6
	There isn't	Workshops	-	3
	There isn't	English Language	1	-
	There isn't	Human Rights and democracy	1	-
Second / Building and construction	There isn't	Concrete technology	2	2
	There isn't	Technology of Construction	-	4
	There isn't	Soil mechanics	2	2
	There isn't	Civil Drawing	1	5
	There isn't	Surveying (2)	1	2
	There isn't	Construction Equipment's	2	-
	There isn't	Computer and Artificial Intelligence (2)	1	1
	There isn't	Quantity Surveying	1	2
	There isn't	Buildings & Fabricated Building	2	-
	There isn't	Project	-	2
	There isn't	Crimes of the defunct Baath Party regime	1	
	There isn't	English Language	1	-

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First / road construction	There isn't	Construction materials and asphalt	2	3
	There isn't	Surveying (1)	2	2
	There isn't	Engineering Mechanics	2	1
	There isn't	Engineering Drawing	-	6
	There isn't	Mathematics	3	-
	There isn't	Computer and Artificial Intelligence (1)	1	2
	There isn't	Workshops	--	3
	There isn't	Human Rights and Democracy	1	-
	There isn't	English Language	1	-
Second / construction of roads	There isn't	Highway Construction	1	2
	There isn't	Traffic and Highway Engineering	1	2
	There isn't	Soil mechanics	2	2
	There isn't	Concrete Technology	2	2
		Computer and Artificial Intelligence (2)	1	1
	There isn't	Surveying (2)	1	3
	There isn't	Highway Drawing	-	3
	There isn't	Highway Construction Equipment's	1	2
	There isn't	Airports and Railways Engineering	1	1
	There isn't	Computer (2)	1	2
	There isn't	Quantity Surveying	1	2
	There isn't	Project	-	2
	There isn't	Crimes of the defunct Baath Party regime	1	-
	There isn't	English Language	1	-

8. Expected learning outcomes of the program

Knowledge

- 1– Knowing how to draw and read structural maps in civil disciplines.
- 2– Knowing the types and uses of construction machinery and equipment used in the implementation of projects.

3- Knowing the types and characteristics of construction materials used in the implementation of projects.

4- Know how to analyze the engineering and economic factors of projects.

Skills

1 – Field experience and skill in the field of work for planning, surveying and construction work.

2 – Practical experience in laboratory tests for all civil specialties.

3 – Applied experience in computer laboratories to turn the idea into reality.

4 – Office experience for the preparation of bills of quantities and costs for projects.

Values

1- The student should pay attention to the calm and order of the class.

2- The student should not interrupt his colleagues while discussing an issue.

3- The student should learn about the impact of science and scientists on life.

4- The student should be careful not to fail to attend the lecture.

9. Teaching and Learning Strategies

Lecture, workshop, laboratory, methodological training, summer training.

10. Evaluation methods

1. Daily oral tests.

2. Quarterly and annual tests

11. Faculty

Faculty Members

Academic Rank	Specialization	Special Requirements	Number of the teaching staff
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	General	Special	/Skills (if applicable)	Staff	Lecturer
Professor	Engineering Geology	Water Resources	There isn't	1	
	Civil Engineering	Balding Materials	There isn't	1	
Assistant Professor	Civil Engineering	Structures	There isn't	1	
	Civil Engineering	Construction Materials	There isn't	1	
Lecturer	Civil Engineering	Structure	There isn't	2	
	Civil Engineering	Balding and Constriction	There isn't	1	
	Civil Engineering	Irrigation and drainage	There isn't	1	
	Chemical Engineering	Energy	There isn't	1	
	Education	Arabic Language	There isn't	1	
Assistant Lecturer	Civil Engineering	Roads & Transportation	There isn't	2	
	Civil Engineering	Structure	There isn't	1	
	Civil Engineering	Construction Materials	There isn't	1	

Professional Development

Mentoring new faculty members

They are guided through the meeting and clarifying the controls and instructions for university service employees.

Professional development of faculty members

Lecturers participate in courses, workshops and seminars of general and subspecialties.

12.Acceptance Criterion

The Department of Civil Technologies receives graduates of the preparatory / scientific branch and graduates of vocational preparatory (industrial) according to the central admission requirements every year.

13.The most important sources of information about the program

1. Textbooks.
2. Lectures
3. Internet

14.Program Development Plan

1. Holding scientific seminars.
2. Holding courses within the institution.
3. Participation in courses outside the institution.
4. Scientific trips for projects.
5. Developing 10% of the curricula to keep pace with the labor market.

Program Skills Outline															
Required program Learning outcomes															
Emotional and value goals				Program Skills Objectives				Cognitive goals				fundamental Or optional	Course Name	Course Code	Year/Level
C4	C3	C2	C1	B4	B3	B2	B1	A4	A3	A2	A1				
√						√		√				Specialist	Construction Materials	There isn't	First / building and construction
		√			√			√			√	Specialist	Engineering Mechanics	There isn't	
√							√		√			Specialist	Surveying (1)	There isn't	
			√			√		√				Specialist	Concrete Materials	There isn't	
√				√							√	Specialist	Mathematics	There isn't	
		√		√							√	Help	Computer Applications	There isn't	
		√			√			√				Specialist	Engineering Drawing	There isn't	
√							√			√		Help	Workshop	There isn't	
		√			√			√				Help	English Language	There isn't	
			√				√			√		General	Human Rights and Democracy	There isn't	
√						√			√			Specialist	Concrete technology	There isn't	Second / Building and construction
		√				√				√		Specialist	Construction Techniques	There isn't	
		√			√				√			Specialist	Soil mechanics	There isn't	
√					√			√				Specialist	Civil Drawing	There isn't	
√							√				√	Specialist	Surveying (2)	There isn't	
√				√					√			Specialist	Construction Equipment	There isn't	
√		√			√			√				Help	Computer	There isn't	

														Applications		
		√		√						√			Specialist	Quantity Surveying	There isn't	
		√				√			√				Specialist	Buildings & Fabricating Building	There isn't	
√					√				√				Specialist	Project	There isn't	
			√				√		√				Help	English Language	There isn't	
		√				√				√			General	Crimes of the defunct Baath	There isn't	First / road construction
√							√			√			Specialist	Construction materials and asphalt	There isn't	
		√					√		√				Specialist	Engineering Mechanics	There isn't	
	√				√					√			Specialist	Surveying (1)	There isn't	
√				√							√		Help	Mathematics	There isn't	
			√				√				√		Help	Computer Applications	There isn't	
		√			√			√					Specialist	Engineering Drawing	There isn't	
	√						√			√			Help	Workshop	There isn't	
	√			√				√					General	Human Rights and Democracy	There isn't	Second / construction of roads
		√			√				√				Specialist	Road construction	There isn't	
		√			√			√					Specialist	Traffic and Highway Engineering	There isn't	
		√				√				√			Specialist	Soil mechanics	There isn't	
√						√			√				Specialist	Concrete technology	There isn't	
		√			√				√				Specialist	Surveying (2)	There isn't	

	√					√			√			Specialist	Highway Drawing	There isn't	
	√					√			√			Specialist	Highway Construction Equipment	There isn't	
√							√			√		Specialist	Airport and Railway Engineering	There isn't	
√				√					√			Specialist	Quantity Surveying	There isn't	
	√					√		√				Specialist	Project	There isn't	
	√			√				√				General	Crimes of the defunct Baath	There isn't	

Course Description Form

1. Course Name:	
English Language Technical 1	
2. Course Code:	
There isn't	
3. Semester / Year:	
Annual	
4. Description Preparation Date:	
3/11/2024	
5. Available Attendance Forms:	
Attendance in the classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 Hours / 2 unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Laith kareem Email: Laith1978@atu.edu.iq	
8. Course Objectives	
Course Objectives	This course aims to review the simplified basic grammar of the English language that he has previously studied in The previous stages, but in a lengthy manner, as well as the gradual introduction of the student to the atmosphere of technical terms related to Civil specialization in its various branches.
9. Teaching and Learning Strategies	
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming, free discovery, and investigation.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	2	Understanding and applying the lecture	A/ pronunciation: voiceless consonants B/ elements of sentence structure C/ patterns of sentences	Lecture	Daily oral, quarterly and annual tests.
Second	2	Understanding and applying the lecture	A/pronunciation : voiceless consonants (ii) B/ the part of speech: 1. Nouns 2.verbs 3. Adjectives adverbs	Lecture	Daily oral, quarterly and annual tests.
Third	2	Understanding and applying the lecture	A/ pronunciation : voiced consonants (I) B/ the parts of speech : 1. articles 2. Demonstratives 3. Pronouns 4. Prepositions 5. Conjunctions 6. Interjection	Lecture	Daily oral, quarterly and annual tests.
Fourth	2	Understanding and applying the lecture	A/ pronunciation: voiced consonants (ii) B/ classification of verbs	Lecture	Daily oral, quarterly and annual tests.
V	2	Understanding and applying the lecture	A/ pronunciation : pure vowels B/ pronouns (I)	Lecture	Daily oral, quarterly and annual tests.
Sixth	2	Understanding and applying the lecture	A/pronunciation : diphthongs B/pronounce (II)	Lecture	Daily oral, quarterly and annual tests.
Seventh	2	Understanding and applying the lecture	A/ types of questions B/genitives	Lecture	Daily oral, quarterly and annual tests.
Eighth	2	Understanding and applying the lecture	A/ the present simple tense B/the present continuous tense C/ the present perfect tense	Lecture	Daily oral, quarterly and annual tests.
Ninth	2	Understanding and applying the lecture	A/ the past simple tense B/ the past perfect tense C/ future	Lecture	Daily oral, quarterly and annual tests.
X	2	Understanding and applying the lecture	A/ active and passive voice B/ the number system in English	Lecture	Daily oral, quarterly and annual tests.
Eleventh	2	Understanding and applying the lecture	A/punctuation	Lecture	Daily oral, quarterly and annual tests.
Twelfth	2	Understanding and applying the lecture	A/business letters B/tenders	Lecture	Daily oral, quarterly and annual tests.
XIII-XX	2	Understanding and applying the lecture	Comprehensive paragraphs about the branches of civil engineering	Lecture	Daily oral, quarterly and annual tests.

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)	Book for learning English
Main references (sources)	English language book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:	
Surveying (1)	
2.Course Code:	
There isn't	
3.Semester / Year:	
Annual	
4.Description Preparation Date:	
3/11/2024	
5.Available Attendance Forms:	
Attendance in the classroom	
6.Number of Credit Hours (Total) / Number of Units (Total)	
120 Hours / 8 Unit	
7.Course administrator's name (mention all, if more than one name)	
Name: Mohammed Zaki Salman	
Email: mohammed.z.salman.iba3@atu.edu.iq	
8.Course Objectives	
Course Objectives	Teaching the student, the basics of surveying, its use for civil engineering purposes, and conducting related calculations. Also teaching the student how to measure horizontal distances, erect and drop columns and calculate the appropriate ones, in addition to Drawing the longitudinal and cross sections of the road.
9.Teaching and Learning Strategies	
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the

cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems.

5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery.

6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming, free discovery, and investigation.

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	4	Understanding and apply the lecture	Definition of Surveying, its fields, its divisions, its uses, and units of measurement.	Lecture	Daily, quarterly, annual and practical tests
Second	4	Understanding and apply the lecture	Measuring horizontal distances, routing process, measuring horizontal distance on irregular slope ground.	Lecture	Daily, quarterly, annual and practical tests
Third	4	Understanding and apply the lecture	Measuring the horizontal distances on the lands with regular slopes (if the height difference is known, if the degree of slope of the earth is known, if the angle of slope of the earth is known).	Lecture	Daily, quarterly, annual and practical tests
Fourth	4	Understanding and apply the lecture	Erection and projection of columns (erection methods and dropping methods), how to overcome obstacles to guidance, measurement and guidance.	Lecture	Daily, quarterly, annual and practical tests
V	4	Understanding and apply the lecture	Scanning with tape and lifting (cases of filler when lifting).	Lecture	Daily, quarterly, annual and practical tests
Sixth	4	Understanding and apply the lecture	The planar panel has its parts, the methods of lifting the planar panel, the methods of rays.	Lecture	Daily, quarterly, annual and practical tests
Seventh	4	Understanding and apply the lecture	The method of lifting with the front cross, the method of rotation, the error of the level and how to correct it, the advantages of wiping with the flat plate and the disadvantages of wiping it.	Lecture	Daily, quarterly, annual and practical tests
Eighth	4	Understanding and apply the lecture	Settlement definitions related to its purposes.	Lecture	Daily, quarterly,

					annual and practical tests
Ninth	4	Understanding and apply the lecture	Checking and adjusting the leveling device, balancing the settlement lines (leveling balancing).	Lecture	Daily, quarterly, annual and practical tests
X	4	Understanding and apply the lecture	How to calculate the level of points by the method of rise and fall and solve examples.	Lecture	Daily, quarterly, annual and practical tests
Eleventh	4	Understanding and apply the lecture	Double leveling The effect of the earth's spherical and optical refractions on the leveling work.	Lecture	Daily, quarterly, annual and practical tests
Twelfth	4	Understanding and apply the lecture	Inverted settlement Mutual settlement (reverse) with solving examples.	Lecture	Daily, quarterly, annual and practical tests
Thirteenth	4	Understanding and apply the lecture	Sources of errors in the settlement work, degree of accuracy, amount of error allowed.	Lecture	Daily, quarterly, annual and practical tests
Fourteenth	4	Understanding and apply the lecture	Longitudinal sections, drawing the longitudinal section.	Lecture	Daily, quarterly, annual and practical tests
Fifteenth	4	Understanding and apply the lecture	cross sections, finding the levels of cross section points, drawing the cross section.	Lecture	Daily, quarterly, annual and practical tests
Sixteenth	4	Understanding and apply the lecture	Construction line Calculate the slope of the construction line, find the levels of the construction line if the slope is known, draw the proposed line for the project.	Lecture	Daily, quarterly, annual and practical tests
Seventeenth	4	Understanding and apply the lecture	How to calculate land Surveyings and cross sections using demarcation methods, mathematical layout and coordinates.	Lecture	Daily, quarterly, annual and practical tests
Eighteenth	4	Understanding and apply the lecture	Calculate the volumes of the earth quantities for digging and backfilling.	Lecture	Daily, quarterly, annual and practical tests
Nineteenth	4	Understanding and apply the lecture	Checking and adjusting the leveling device, balancing the settlement lines (leveling balancing).	Lecture	Daily, quarterly, annual and practical tests
20 th	4	Understanding and apply the lecture	Contour lines, their properties, contour period factors on which the contour period depends, contour space.	Lecture	Daily, quarterly, annual and practical tests
Twenty-first	4	Understanding and apply the lecture	Methods of setting contour lines (indirect methods), section method, check point method, squares method (grid leveling).	Lecture	Daily, quarterly, annual and practical tests
Twenty-second	4	Understanding and apply the lecture	Drawing contour lines (calculation method and	Lecture	Daily, quarterly,

			difference division method		annual and practical tests
Twenty-third	4	Understanding and apply the lecture	Regressions Calculate the volumes of tanks (tanks) Drawing sections of contour lines.	Lecture	Daily, quarterly, annual and practical tests
Twenty-fourth	4	Understanding and apply the lecture	Calculation of Surveyings using the planometer.	Lecture	Daily, quarterly, annual and practical tests
Twenty-fifth	4	Understanding and apply the lecture	Local gravity abbreviated circular deviations.	Lecture	Daily, quarterly, annual and practical tests
Twenty-sixth	4	Understanding and apply the lecture	Scanning (lifting) using the compass and practical exercises on how to calculate the survey with the compass	Lecture	Daily, quarterly, annual and practical tests
Twenty-seventh	4	Understanding and apply the lecture	Curves Horizontal curves all kinds (circular and gradient) Elements of a simple circular curve.	Lecture	Daily, quarterly, annual and practical tests
Twenty-eighth	4	Understanding and apply the lecture	Simple circular curve design (equations).	Lecture	Daily, quarterly, annual and practical tests
Twenty-ninth	4	Understanding and apply the lecture	Vertical curves .	Lecture	Daily, quarterly, annual and practical tests
Xxx	4	Understanding and apply the lecture	General Review.	Lecture	Daily, quarterly, annual and practical tests

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)	Engineering surveying book
Main references (sources)	Surveying engineering book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:
Workshop
2.Course Code:
There isn't

3.Semester / Year:					
Annual					
4.Description Preparation Date:					
3/11/2024					
5.Available Attendance Forms:					
Attendance in the Workshops					
6.Number of Credit Hours (Total) / Number of Units (Total)					
90 ours / 6 unit					
7.Course administrator's name (mention all, if more than one name)					
Name: kareem fadel abod					
Email: inb.krm@atu.edu.iq					
8.Course Objectives					
Course Objectives		Acquiring manual skills in using hand tools, measuring tools, and operating machines necessary to prepare the student As a technician in the field of building and construction.			
9.Teaching and Learning Strategies					
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming, free discovery, and investigation.				
10.Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Second and the third	3	Understanding and applying the lecture	Industrial Security: General rules for the prevention of accidents and health care equipment and methods of use.	Lecture	Practical daily tests
Fourth and the fifth	3	Understanding and applying the lecture	Carpentry: Basic principles in the carpentry of model and the use of hand tools (cutting saw, punching saw, hammer, abrasion, trap, radiator).	Lecture	Practical daily tests
Sixth and the	3	Understanding and	The use of band saw, disc	Lecture	Practical daily tests

seventh		applying the lecture	grinding machine, piston		
Eighth and ninth	3	Understanding and applying the lecture	Chips: Training the student on the work of chips and use of measuring tools and files, automatic publishing devices, shankara and ho	Lecture	Practical daily tests
Eighth and ninth	3	Understanding and applying the lecture	Turning: the use of different lathes, operations for turning (planar, internal hardening work of different teeth).	Lecture	Practical daily tests
X	3	Understanding and applying the lecture	Plumbing: Industrial security by casting, mold forming molds and plumbing work steps.	Lecture	Practical daily tests
Eleventh and twelfth and thirteenth	3	Understanding and applying the lecture	Welding: a. Occupational safety and security precautions.	Lecture	Practical daily tests
Fourteenth	3	Understanding and applying the lecture	Cutting and bending metal devices and machines used in cutting and bending metal sheets and rebar bars.	Lecture	Practical daily tests
Fifteenth	3	Understanding and applying the lecture	Plumbing: Training the student on the rolling machine and the planning process on the sheets.	Lecture	Practical daily tests
Sixteenth	3	Understanding and applying the lecture	Cutting and bending metal devices and machines used in cutting and bending metal sheets and rebar bars.	Lecture	Practical daily tests
Seventeenth	3	Practical daily tests	Measurements and tools used (tape, vernier, micrometer).	Lecture	Practical daily tests
Eighteenth	3	Practical daily tests	Practical applications for carpentry works for civil facilities, including:	Lecture	Practical daily tests
Nineteenth	3	Practical daily tests	Function: wooden doors (press doors, filling doors)	Lecture	Practical daily tests
20 th and the twenty-first	3	Practical daily tests	Action: Wooden molds.	Lecture	Practical daily tests
Twenty-second And the twenty-third	3	Practical daily tests	Applications on reinforcing steel, roof reinforcement, bridge and column reinforcement (iron cutting, iron bending)	Lecture	Practical daily tests
Twenty-fourth and the twenty-fifth	3	Practical daily tests	Exercises on cutting and tying structural steel using rivets, screws and welding	Lecture	Practical daily tests
Twenty-sixth and the twenty-seventh and twenty-eighth	3	Practical daily tests	Stone and stone works: cutting, sawing, smoothing, perforation.	Lecture	Practical daily tests
Twenty-ninth Thirty	3	Practical daily tests	Connecting pipes for water foundations, teething (using knives), types of accessories for pipes and methods of connecting them, sanitary	Lecture	Practical daily tests

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)	Mechanical workshop lectures
Main references (sources)	Plumbing and plumbing book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:	
Computer 1	
2.Course Code:	
There isn't	
3.Semester / Year:	
Annual	
4.Description Preparation Date:	
3/11/2024	
5.Available Attendance Forms:	
Attendance in the classroom	
6.Number of Credit Hours (Total) / Number of Units (Total)	
60Hours / 2 unit	
7.Course administrator's name (mention all, if more than one name)	
Name: muhand jawad jasm	
Email: muhand.jasim@atu.edu.iq	
8.Course Objectives	
Course Objectives	The general objective of the course: to introduce the student to the calculator with an idea about its prospects and use in various fields and... Principles of programming and providing him with skill in using a calculator to implement programs previously prepared for application in his field of specialization. The purpose of the article. Introducing the student to using the Windows operating system and the Auto Cad drawing program Microsoft Word and Excel printing software
9.Teaching and Learning Strategies	
Strategy	1. Competitive Learning - 2. Individual learning -

	3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming, free discovery, and investigation.
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10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	2	Understanding and applying the lecture	Windows operating system: the concept of the Windows system, its basic features and requirements,	Lecture	Oral and written exams
Second	2	Understanding and applying the lecture	The concept of the window for any program and identify its main components, dealing with desktop icons such as: (My Documents; My Computer ; Recycle Bin).	Lecture	Oral and written exams
Third	2	Understanding and applying the lecture	Learn about (My Computer) in terms of disks, folders and file and how to deal with the initialization of floppy disks and copy folders and files, benefit from cutting and pasting and know the characteristics of disks,	Lecture	Oral and written exams
Fourth	2	Understanding and applying the lecture	Autocad program, identify the program, where it was named, the importance of the program and the contents of the program window, and how to create and store a new file	Lecture	Oral and written exams
V	2	Understanding and applying the lecture	Methods of selecting most AutoCAD orders	Lecture	Oral and written exams
Sixth	2	Understanding and applying the lecture	Toolbars in AutoCAD and how to hide and show them and customize a special interface for the program	Lecture	Oral and written exams
Seventh and eighth	2	Understanding and applying the lecture	Status bar (Grid, Ortho, Snap, ...,etc.)	Lecture	Oral and written exams
Ninth and tenth	2	Understanding and applying the lecture	Auxiliary commands and panel limits (Limits, Units, Zoom)	Lecture	Oral and written exams
XI-XV	2	Understanding and	Basic drawing	Lecture	Oral and written

		applying the lecture	commands Draw menu		exams
XVI-XX	2	Understanding and applying the lecture	Modify Menu Modify commands	Lecture	Oral and written exams
XXI-XXI	2	Understanding and applying the lecture	Text commands with Dimension commands	Lecture	Oral and written exams
Twenty-third – twenty-sixth	2	Understanding and applying the lecture	Microsoft Word printing program how to run and write with it, how to store, change font types, modify the paper in terms of margins, or flip the paper, use tables and print inside it	Lecture	Oral and written exams
XXVII – Thirtieth	2	Understanding and applying the lecture	Microsoft Excel program how to run it and download numerical values in columns and storage and add columns or new rows and apply some functions such as addition and other calculations	Lecture	Oral and written exams

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)	Computer principles book
Main references (sources)	AutoCAD drawing book
Recommended books and references (scientific journals, reports...)	Lecture
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:
Human Rights and Democracy
2.Course Code:
There isn't
3.Semester / Year:
Annual
4.Description Preparation Date:
3/11/2024
5.Available Attendance Forms:

Attendance in the classroom					
6.Number of Credit Hours (Total) / Number of Units (Total)					
30Hours / 2 unit					
7.Course administrator's name (mention all, if more than one name)					
Name: Dr. Ahmmmed kudear					
Email: Ahmmmed.kuder.iba103@atu.edu.iq					
8.Course Objectives					
Course Objective	This course aims to introduce the student to human rights, their goals, and their development in various eras and roles International organizations and public opinion in respecting and protecting human rights				
9.Teaching and Learning Strategies					
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming, free discovery and investigation.				
10.Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	2	Understanding and applying the lecture	Human rights, definition, objectives	Lecture	Daily Tests Quarterly and yearly
Second	2	Understanding and applying the lecture	The roots and development of human rights in human history: human rights in antiquity and the Middle Ages	Lecture	Daily Tests Quarterly and yearly
Third	2	Understanding and applying the lecture	Human rights in ancient civilizations, especially the civilization of Mesopotamia	Lecture	Daily Tests Quarterly and yearly
Fourth	2	Understanding and applying the lecture	Human rights in divine law with a focus on human rights in Islam	Lecture	Daily Tests Quarterly and yearly
V	2	Understanding and applying the lecture	Human rights in the Middle Ages: human rights in doctrines - schools and political theories - human rights in companies and treaties - declarations - revolutions and constitutions	Lecture	Daily Tests Quarterly and yearly

Sixth	2	Understanding and apply the lecture	The Right of Man in Contemporary and Modern History: International Recognition of Human Rights since the First World War and the League/United Nations	Lecture	Daily Tests Quarterly and yearly
Seventh	2	Understanding and apply the lecture	Regional recognition of human rights: European Convention on Human Rights 1950, American Convention on Human Rights 1969, African Charter on Human Rights 1981, Arab Charter on Human Rights 1994.	Lecture	Daily Tests Quarterly and yearly
Eighth	2	Understanding and apply the lecture	NGOs and human rights (ICRC, Amnesty International, Human Rights Watch)	Lecture	Daily Tests Quarterly and yearly And the style
Ninth	2	Understanding and apply the lecture	National Human Rights Organizations	Lecture	Daily Tests Quarterly and yearly
X	2	Understanding and apply the lecture	Human rights in Iraqi constitutions between the text and reality.	Lecture	Daily Tests Quarterly and yearly
Eleventh and twelfth	2	Understanding and apply the lecture	The relationship between human rights and public freedoms	Lecture	Daily Tests Quarterly and yearly
Thirteenth	2	Understanding and apply the lecture	Essential human rights and collective human rights	Lecture	Daily Tests Quarterly and yearly
Fourteenth	2	Understanding and apply the lecture	Economic, social and cultural human rights, civil and political rights	Lecture	Daily Tests Quarterly and yearly
Fifteenth	2	Understanding and apply the lecture	Modern human rights: the right to development, the right to a clean environment, the right to solidarity, the right to religion	Lecture	Daily Tests Quarterly and yearly
Sixteenth	2	Understanding and apply the lecture	Guarantees of respect and protection of human rights at the national level, guarantees in the Constitution and laws, guarantees in the principles of the rule of law	Lecture	Daily Tests Quarterly and yearly
Seventeen	2	Understanding and apply the lecture	Guarantees in constitutional oversight, guarantees in freedom of the press and public opinion, the role of non-governmental organizations in respecting and protecting human rights	Lecture	Daily Tests Quarterly and yearly
Eighteenth	2	Understanding and apply the lecture	Guarantees, respect and protection of human rights at the international level:	Lecture	Daily Tests Quarterly and yearly
Nineteenth	2	Understanding and apply the lecture	Role of regional organizations (Arab League, European	Lecture	Daily Tests Quarterly and yearly

			Union, African Union, Organization of American States, ASEAN)		
20 th	2	Understanding and apply the lecture	The general theory of freedoms: the origin of rights and freedoms, the position of the project on declared rights and freedoms, the use of the term public freedoms	Lecture	Daily Tests Quarterly and yearly
Twenty-fifth	2	Understanding and apply the lecture	The functional nature of concept of public freedom philosophical consideration of the functional right, structural considerations positive right, economic considerations and public freedoms	Lecture	Daily Tests Quarterly and yearly
Twenty-second and twenty-third	2	Understanding and apply the lecture	The legal basis of the rule of law	Lecture	Daily Tests Quarterly and yearly
Twenty-fourth	2	Understanding and apply the lecture	Regulation of public freedoms by public authorities	Lecture	Daily Tests Quarterly and yearly
Twenty-fifth	2	Understanding and apply the lecture	Non-judicial litigation or grievance	Lecture	Daily Tests Quarterly and yearly
Twenty-sixth	2	Understanding and apply the lecture	Judicial appeal, determining the responsibility of the state for its legitimate acts	Lecture	Daily Tests Quarterly and yearly
Twenty-seventh	2	Understanding and apply the lecture	The effect of dual elimination of public freedoms Public freedoms under administrative jurisprudence	Lecture	Daily Tests Quarterly and yearly
Twenty-eighth	2	Understanding and apply the lecture	Equality: the historical development of the administrative concept	Lecture	Daily Tests Quarterly and yearly
Twenty-ninth	2	Understanding and apply the lecture	The modern development of the idea of equality	Lecture	Daily Tests Quarterly and yearly
Xxx	2	Understanding and apply the lecture	Gender equality Equality between individuals according to their beliefs and race	Lecture	Daily Tests Quarterly and yearly

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)	Human rights book
Main references (sources)	Democracy book
Recommended books and references (scientific journals, reports...)	Lecture
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:					
Engineering Drawing					
2.Course Code:					
There isn't					
3.Semester / Year:					
Annual					
4.Description Preparation Date:					
3/11/2024					
5.Available Attendance Forms:					
Attendance in the classroom					
6.Number of Credit Hours (Total) / Number of Units (Total)					
180Hours / 12 unit					
7.Course administrator's name (mention all, if more than one name)					
Name: Mohammed Zaki Salman					
Email: mohammed.z.salman.iba3@atu.edu.iq					
8.Course Objectives					
Course Objectives	The general objective of the course is to teach the student the basic principles of engineering drawing and computer drawing programs in an efficient and rapid manner To enable him to express his thoughts through it. The specific objective of the course is to qualify the student to draw and read maps Engineering with knowledge of architectural and construction terms used in maps.				
9.Teaching and Learning Strategies					
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming, free discovery, and investigation.				
10.Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	2	Understanding and applying the lecture	Basics of engineering drawing tools used, painting fixation	Lecture	Daily and quarterly

			types of fonts, writing in geometric calligraphy		practical tests
Second	2	Understanding and applying the lecture	Engineering processes, halving of a straight piece, halving of an angle, straightening with a circle and an arc, connecting two lines with an arc, drawing of an equilateral, pentagonal, hexagonal	Lecture	Daily and quarterly practical tests
Third	2	Understanding and applying the lecture	Ellipse, application of drawing geometric shapes using basic geometric processes	Lecture	Daily and quarterly practical tests
Fourth	2	Understanding and applying the lecture	Principles of projection, method of placing dimensions on the drawing, exercises on projection	Lecture	Daily and quarterly practical tests
V	2	Understanding and applying the lecture	Drawing the isometric perspective	Lecture	Daily and quarterly practical tests
Sixth	2	Understanding and applying the lecture	Finding the Missing Projection with Isometric Perspective Drawing	Lecture	Daily and quarterly practical tests
Seventh	2	Understanding and applying the lecture	heckler	Lecture	Daily and quarterly practical tests
Eighth	2	Understanding and applying the lecture	AutoCAD applications, redefining the relationship between AutoCAD program and its use in the completion of two-dimensional drawings (2D) and three-dimensional (3D) and opening a new page in the program,	Lecture	Daily and quarterly practical tests
Ninth	2	Understanding and applying the lecture	Identify the types of fonts and how to obtain and use them in the AutoCAD program by placing them in multiple layers (Layers), different colors and different thickness (Line weight)	Lecture	Daily and quarterly practical tests
X	2	Understanding and applying the lecture	Draw basic geometric shapes: triangle, pentagon, hexagon and polygons in general, ellipse, connecting two lines with 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	Lecture	Daily and quarterly practical tests
Eleventh and twelfth	2	Understanding and applying the lecture	Drawing composite geometric shapes and mechanical parts (applications to engineering processes)	Lecture	Daily and quarterly practical tests
Thirteenth and fourteenth	2	Understanding and applying the lecture	Drawing projections of stereoscopic shapes and placing dimensions on them	Lecture	Daily and quarterly practical tests

			using multiple layers		
Fifteenth	2	Understanding and applying the lecture	Drawing projections of stereoscopic shapes using different colors of lines and different thicknesses by changing properties	Lecture	Daily and quarterly practical tests
Sixteenth	2	Understanding and applying the lecture	Find the missing projection and continue drawing the projections	Lecture	Daily and quarterly practical tests
Seventeenth	2	Understanding and applying the lecture	Putting additions to the drawings (Hatch & gradient), and how to add additional inscriptions to the program from external sources	Lecture	Daily and quarterly practical tests
Eighteenth and nineteenth	2	Understanding and applying the lecture	Drawing the stereoscopic shape in the way of (Isometric snap)	Lecture	Daily and quarterly practical tests
20 th	2	Understanding and applying the lecture	Drawing sections in the same way (Isometric snap)	Lecture	Daily and quarterly practical tests
Twenty one	2	Understanding and applying the lecture	How to repeat shapes using the command (Polar array & array Rectangular	Lecture	Daily and quarterly practical tests
Twenty-second	2	Understanding and applying the lecture	How to work (Block) to repeat geometric shapes and the way to store and recall them	Lecture	Daily and quarterly practical tests
Twenty-third and fourth	2	Understanding and applying the lecture	Drawing an integrated board containing the types of drawings (2D) and (3D) and containing a spreadsheet and an explanation on the drawings.	Lecture	Daily and quarterly practical tests
Twenty-fifth	2	Understanding and applying the lecture	How to display shapes with different scenes on one screen using the command (view ports)	Lecture	Daily and quarterly practical tests
Twenty-sixth	2	Understanding and applying the lecture	How to transfer files between files and how to open more than one file by the command window)	Lecture	Daily and quarterly practical tests
Twenty-seventh	2	Understanding and applying the lecture	Singling out geometric shapes (cube, prism, pyramid)	Lecture	Daily and quarterly practical tests
Twenty-eighth	2	Understanding and applying the lecture	Basics of engineering drawing tools used, painting fixation types of fonts, writing in geometric calligraphy	Lecture	Daily and quarterly practical tests
Twenty-ninth	2	Understanding and applying the lecture	Engineering processes, halving of a straight piece, halving of an angle, straightening with a circle and an arc, connecting two lines with an arc,	Lecture	Daily and quarterly practical tests
Xxx	2	Understanding and applying the lecture	Ellipse, application of drawing geometric shapes	Lecture	Daily and quarterly practical tests

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)	Engineering drawing book
Main references (sources)	Computer drawing book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:	
Mathematics	
2.Course Code:	
There isn't	
3.Semester / Year:	
Annual	
4.Description Preparation Date:	
3/11/2024	
5.Available Attendance Forms:	
Attendance in the classroom	
6.Number of Credit Hours (Total) / Number of Units (Total)	
90ours / 6 unit	
7.Course administrator's name (mention all, if more than one name)	
Name: manar hamed jasem	
Email: manar.jasim@atu.edu.iq	
8.Course Objectives	
Course Objectives	Developing the student's ability to use mathematics in practical applications and benefit from it in engineering lessonsThe other. The student learned the different ways of representing equations, mathematical laws, and various data to form curves In a chart and different types of charts that suit the purpose of drawing them.
9.Teaching and Learning Strategies	
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the

learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery.

6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	3	Understanding and applying t lecture	Matrices, determinants, properties.	Lecture	Oral and written exams
Second	3	Understanding and applying t lecture	Solving linear equations, Cramer method, applications to determinants, solving force analysis equations.	Lecture	Oral and written exams
Third	3	Understanding and applying t lecture	Vectors, vector analysis, vector and scalar quantities, vector algebra, vector arithmetic operations in space.	Lecture	Oral and written exams
Fourth	3	Understanding and applying t lecture	Unit of orthogonal vectors, vector scale, scalar and directional multiplication, applications of vectors, calculation of moment applications, work.	Lecture	Oral and written exams
V	3	Understanding and applying t lecture	Function, trigonometric functions and trigonometric relations, logarithmic function.	Lecture	Oral and written exams
Sixth	3	Understanding and applying t lecture	Exponential function, hyperbolic functions, their applications.	Lecture	Oral and written exams
Seventh	3	Understanding and applying t lecture	Ends, the end of algebraic and trigonometric functions, applications to the end.	Lecture	Oral and written exams
Eighth	3	Understanding and applying t lecture	Sequences .	Lecture	Oral and written exams
Ninth	3	Understanding and applying t lecture	Differentiation, derivative, derivative of algebraic functions, chain rule.	Lecture	Oral and written exams
X	3	Understanding and applying t lecture	Curved functions, the derived standard function with higher orders.	Lecture	Oral and written exams
Eleventh	3	Understanding and applying t	The derivative of	Lecture	Oral and written

		lecture	trigonometric functions, the derivative of logarithmic functions.		exams
Twelfth	3	Understanding and applying t lecture	The derivative of the exponential function, the derivative of hyperbolic functions.	Lecture	Oral and written exams
Thirteenth	3	Understanding and applying t lecture	Derivative applications, tangent and column equation, speed, acceleration and magnification.	Lecture	Oral and written exams
Fourteenth	3	Understanding and applying t lecture	Exponents and logarithms .	Lecture	Oral and written exams
Fifteenth	3	Understanding and applying t lecture	General physical and engineering applications, drawing functions.	Lecture	Oral and written exams
Sixteenth	3	Understanding and applying t lecture	Integral, indefinite integral, integration of algebraic functions, and logarithm.	Lecture	Oral and written exams
Seventeenth	3	Understanding and applying t lecture	Integration of exponential and trigonometric functions.	Lecture	Oral and written exams
Eighteenth	3	Understanding and applying t lecture	Definite integral, applications of definite integral, Surveying under the curve, Surveying between curves.	Lecture	Oral and written exams
Nineteenth	3	Understanding and applying t lecture	Rotational volumes, curved arc length.	Lecture	Oral and written exams
20 th	3	Understanding and applying t lecture	Physical and engineering applications (work, momentum, momentum, inertial momentum).	Lecture	Oral and written exams
Twenty first and the twenty second	3	Understanding and applying t lecture	General methods of integration include compensation and segmentation.	Lecture	Oral and written exams
Twenty-third	3	Understanding and applying t lecture	Use of partial, exponential and logarithmic fractions.	Lecture	Oral and written exams
Twenty-fourth	3	Understanding and applying t lecture	Numerical methods in integration, trapezoidal rule, base (calculation of the volume of earth quantities and the Surveying of longitudinal sections).	Lecture	Oral and written exams
Twenty-fifth	3	Understanding and applying t	Solving discrete,	Lecture	Oral and written

		lecture	homogeneous and linear differential equations with their different applications within the field of specialization.		exams
Twenty-sixth	3	Understanding and applying t lecture	Find the value of the highest or lowest point of the vertical curve.	Lecture	Oral and written exams
Twenty-seventh	3	Understanding and applying t lecture	Complex numbers, addition subtraction, multiplication, division.	Lecture	Oral and written exams
Twenty-eighth	3	Understanding and applying t lecture	Polar formula, conversion of the polar formula to algebra and vice versa, forces and roots, representation of roots by drawing.	Lecture	Oral and written exams
Twenty-ninth Thirty	3	Understanding and applying t lecture	Statistical operations, frequency distributions, histogram, frequency curve, arithmetic mean, range, standard deviation, variance and relativity.	Lecture	Oral and written exams
The first	3	Understanding and applying t lecture	Matrices, determinants, properties.	Lecture	Oral and written exams
Second	3	Understanding and applying t lecture	Solving linear equations, Cramer method, applications to determinants, solving force analysis equations.	Lecture	Oral and written exams

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)	Mathematics book
Main references (sources)	Applied mathematics book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:
Construction Materials

2.Course Code:					
There isn't					
3.Semester / Year:					
Annual					
4.Description Preparation Date:					
3/11/2024					
5.Available Attendance Forms:					
Attendance in the classroom					
6.Number of Credit Hours (Total) / Number of Units (Total)					
150Hours / 10 unit					
7.Course administrator's name (mention all, if more than one name)					
Name: Dr. Zaid Ali Hasan					
Email: zaid.hasan.bib@atu.edu.iq					
8.Course Objectives					
Course Objectives	Introducing the student to the properties of construction materials and methods of producing them, and introducing the student to the modern alternatives that currently exist Modern methods of production and then qualifying the student to carry out standard tests to determine the conformity of materials Structural specifications and determine the possibility of their use in construction, which ensures strength, safety and economy.				
9.Teaching and Learning Strategies					
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,				
10.Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	4	Understanding and applying the lecture	A general description of the physical properties and	Lecture	Oral and written exams

			standard specifications of building materials and their uses in buildings.		
Second	4	Understanding and applying the lecture	Clay bricks and methods of manufacture.	Lecture	Oral and written exams
Third	4	Understanding and applying the lecture	Properties, uses and specifications of clay bricks.	Lecture	Oral and written exams
Fourth	4	Understanding and applying the lecture	Tests for clay bricks.	Lecture	Oral and written exams
V	4	Understanding and applying the lecture	Lime bricks Glass bricks, properties and methods of manufacture.	Lecture	Oral and written exams
Sixth	4	Understanding and applying the lecture	Concrete bricks Concrete blocks (properties and method of manufacture with an explanation of the difference between the two).	Lecture	Oral and written exams
Seventh	4	Understanding and applying the lecture	Thermostone, its properties, and methods of manufacture	Lecture	Oral and written exams
Eighth	4	Understanding and applying the lecture	Discussion of the visit to the brick factory.	Lecture	Oral and written exams
Ninth	4	Understanding and applying the lecture	Building stone classification and types.	Lecture	Oral and written exams
X	4	Understanding and applying the lecture	Uses of building stone according to its types.	Lecture	Oral and written exams
Eleventh	4	Understanding and applying the lecture	Binders and their types.	Lecture	Oral and written exams
Twelfth	4	Understanding and applying the lecture	Materials that resist moisture (cement mortar, Noura cement mortar), light, how to manufacture, properties	Lecture	Oral and written exams
Thirteenth	4	Understanding and applying the lecture	Binders that are not resistant to moisture (plaster) properties and manufacture.	Lecture	Oral and written exams
Fourteenth	4	Understanding and applying the lecture	Gypsum products, their types and properties, secondary ceiling materials and types.	Lecture	Oral and written exams
Fifteenth	4	Understanding and applying the lecture	Application materials, cashews and slabs and their types.	Lecture	Oral and written exams
Sixteenth	4	Understanding and applying the lecture	Methods of manufacture Method of application joints .	Lecture	Oral and written exams
Seventeenth	4	Understanding and applying the lecture	Moisture suppressants, their types and reason for	Lecture	Oral and written exams

			use.		
Eighteenth	4	Understanding and applying the lecture	High humidity prevention materials, types, methods of manufacture and uses.	Lecture	Oral and written exams
Nineteenth	4	Understanding and applying the lecture	Semi-elastic and elastic moisture suppressants, types, uses, methods of manufacture and liquid moisture suppressants.	Lecture	Oral and written exams
20 th	4	Understanding and applying the lecture	Epoxy, definition, properties, types, uses.	Lecture	Oral and written exams
Twenty-first	4	Understanding and applying the lecture	Wood origin, types used and methods of use.	Lecture	Oral and written exams
Twenty-second	4	Understanding and applying the lecture	Methods of drying wood and wood defects.	Lecture	Oral and written exams
Twenty-third	4	Understanding and applying the lecture	Metals (ferrous and non-ferrous materials) and their uses in buildings.	Lecture	Oral and written exams
Twenty-fourth	4	Understanding and applying the lecture	Iron methods of manufacture, types and uses.	Lecture	Oral and written exams
Twenty-fifth	4	Understanding and applying the lecture	Thermal insulation materials .	Lecture	Oral and written exams
Twenty-sixth	4	Understanding and applying the lecture	Sound insulation materials.	Lecture	Oral and written exams
Twenty-seventh	4	Understanding and applying the lecture	Dyes .	Lecture	Oral and written exams
Twenty-eighth	4	Understanding and applying the lecture	Glass.	Lecture	Oral and written exams
Twenty-ninth	4	Understanding and applying the lecture	Asphalt, properties of asphalt materials.	Lecture	Oral and written exams
Xxx	4	Understanding and applying the lecture	Types of asphalt and its uses in construction works.	Lecture	Oral and written exams

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)	Construction materials book
Main references (sources)	Building materials book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:					
Concrete Materials					
2.Course Code:					
There isn't					
3.Semester / Year:					
Annual					
4.Description Preparation Date:					
3/11/2024					
5.Available Attendance Forms:					
Attendance in the classroom					
6.Number of Credit Hours (Total) / Number of Units (Total)					
90Hours /6 unit					
7.Course administrator's name (mention all, if more than one name)					
Name: Kareem fadel abod Email: inb.krm@atu.edu.iq					
8.Course Objectives					
Course Objectives	Introducing the student to the materials that make up concrete and mastering the physical, mechanical and chemical properties of these materials. And its effect on concrete. The practical part includes the necessary tests for the materials.				
9.Teaching and Learning Strategies					
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays active role in facilitating the learner's learning, and the learner is active participant in the teaching and learning process. Attention focused on learning processes, examples of which include brainstorming,				
10.Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

The first The second	3	Understanding and applying the lecture	General principles about concrete (definition, composition, terminology, properties).	Lecture	Oral and written exams
Third and the fourth and the fifth	3	Understanding and applying the lecture	Portland cement, its industry, chemical composition, types.	Lecture	Oral and written exams
Sixth	3	Understanding and applying the lecture	Other types of cement (natural cement, expanding cement, aluminous cement) and the specifications of each type.	Lecture	Oral and written exams
Seventh and eighth	3	Understanding and applying the lecture	Properties of cement: softness, weight loss by combustion, stability of cement, heat of hydration.	Lecture	Oral and written exams
Ninth and the tenth	3	Understanding and applying the lecture	Complement cement properties: initial and final cohesion time, compressive durability, tensile strength.	Lecture	Oral and written exams
Eleventh	3	Understanding and applying the lecture	Aggregates: classification of aggregates, methods of modeling, shape of particles, surface texture of particles, durability of aggregates.	Lecture	Oral and written exams
Twelfth and thirteenth And fourteenth and fifteenth and the sixteenth	3	Understanding and applying the lecture	Mechanical properties of aggregates: (specific weight, compact and non-stacked unit of weight, gradiency, porosity, absorbability, abrasive corrosion, sand inflation).	Lecture	Oral and written exams
Seventeenth and eighteenth	3	Understanding and applying the lecture	The percentage of salts, organic matter and clay materials in aggregates, especially sand, interaction with alkaline materials.	Lecture	Oral and written exams
Nineteenth Twenty	3	Understanding and applying the lecture	Light and heavy aggregates: Types of light weight aggg . (natural and industrial), the advantages and	Lecture	Oral and written exams

			disadvantages of light aggregates compared to ordinary aggregates.		
Twenty-first and the twenty second	3	Understanding and applying the lecture	Specifications of light aggregates used in structural concrete, specifications of light aggregates used in insulating concrete and specifications of light aggregates used in the production of concrete blocks.	Lecture	Oral and written exams
Twenty-third	3	Understanding and applying the lecture	The uses of silica , silica fume and fly ash in concrete production in terms of specifications and effects.	Lecture	Oral and written exams
Twenty-fourth	3	Understanding and applying the lecture	Water used in concrete production: mixing water, maturation water, and specifications of each type.	Lecture	Oral and written exams
Twenty-fifth	3	Understanding and applying the lecture	Fibers used in concrete fibers (types, specifications).	Lecture	Oral and written exams
Twenty-sixth and the twenty-seventh	3	Understanding and applying the lecture	Concrete additives admixtures: types and reasons for use of each type (mixing water reducing additives, delayed additives, accelerated additives, operational improvement additives, revised additives, freeze resistance additives).	Lecture	Oral and written exams
Twentyeighth and the twenty ni	3	Understanding and applying the lecture	Chemical composition of additives, homogeneity of material, inspection of specific weight of additives, examination of residual deposits by drying of liquid additives, examination of residual deposits by	Lecture	Oral and written exams

			drying of solid additives, and specifications for that.		
Xxx	3	Understanding and applying the lecture	Physical requirements for concrete additives according to standard specifications (the permissible amount of delay of the cohesion time of the rear materials and the time allowed for acceleration of accelerated materials).	Lecture	Oral and written exams
The first The second	3	Understanding and applying the lecture	General principles about concrete (definition, composition, terminology, properties).	Lecture	Oral and written exams
Third and the fourth the fifth	3	Understanding and applying the lecture	Portland cement, its industry, chemical composition, types.	Lecture	Oral and written exams
Sixth	3	Understanding and applying the lecture	Other types of cement (natural cement, expanding cement, aluminous cement) and the specifications of each type.	Lecture	Oral and written exams
Seventh and eighth	3	Understanding and applying the lecture	Properties of cement: softness, weight loss by combustion, stability of cement, heat of hydration.	Lecture	Oral and written exams
Ninth and the tenth	3	Understanding and applying the lecture	Complement cement properties: initial and final cohesion time, compressive durability, tensile strength.	Lecture	Oral and written exams
Eleventh	3	Understanding and applying the lecture	Aggregates: classification of aggregates, methods of modeling, shape of particles, surface texture of particles, durability of aggregates.	Lecture	Oral and written exams
Twelfth and thirteenth fourteenth and fifteenth and the sixteenth	3	Understanding and applying the lecture	Mechanical properties of aggregates: (specific weight, compact and non-stacked unit of weight,	Lecture	Oral and written exams

			gradiency, porosity, absorbability, abrasive corrosion, sand inflation).		
Seventeenth and eighteenth	3	Understanding and applying the lecture	The percentage of salts, organic matter and clay materials in aggregates, especially sand, interaction with alkaline materials.	Lecture	Oral and written exams
Nineteenth Twenty	3	Understanding and applying the lecture	Light and heavy aggregates: Types of light weight aggg . (natural and industrial), the advantages and disadvantages of light aggregates compared to ordinary aggregates.	Lecture	Oral and written exams
Twenty-first and the twenty second	3	Understanding and applying the lecture	Specifications of light aggregates used in structural concrete, specifications of light aggregates used in insulating concrete and specifications of light aggregates used in the production of concrete blocks.	Lecture	Oral and written exams
Twenty-third	3	Understanding and applying the lecture	The uses of silica , silica fume and fly ash in concrete production in terms of specifications and effects.	Lecture	Oral and written exams
Twenty-fourth	3	Understanding and applying the lecture	Water used in concrete production: mixing water, maturation water, and specifications of each type.	Lecture	Oral and written exams
Twenty-fifth	3	Understanding and applying the lecture	Fibers used in concrete fibers (types, specifications).	Lecture	Oral and written exams
Twenty-sixth and the twenty-seventh	3	Understanding and applying the lecture	Concrete additives admixtures: types and reasons for use of each type (mixing water reducing additives, delayed additives, accelerated additives, operational improvement	Lecture	Oral and written exams

			additives, revised additives, freeze resistance additives).		
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)			Concrete technology book		
Main references (sources)			Concrete inspection book		
Recommended books and references (scientific journals, reports...)			Lectures		
Electronic References, Websites			Internet sites		

Course Description Form

1.Course Name:	
Engineering Mechanics	
2.Course Code:	
There isn't	
3.Semester / Year:	
Annual	
4.Description Preparation Date:	
3/11/2024	
5.Available Attendance Forms:	
Attendance in the classroom	
6.Number of Credit Hours (Total) / Number of Units (Total)	
90Hours / 6 unit	
7.Course administrator's name (mention all, if more than one name)	
Name: Zuhair daher habeb Email: zuhair.habeeb@ atu.edu.iq	
8.Course Objectives	
Course Objectives	Teaching the student to analyze the forces and loads exerted on bodies and extract the stress and strains resulting from these Forces and their relationship to the materials that make up these bodies, analyzing structures and finding the forces and stresses in their parts as a result Imposing external loads and their relationship to the dimensions of the various parts in engineering facilities to withstand the stresses delivered safely and economically

9. Teaching and Learning Strategies

Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	3	Understanding applying the lecture	Definition of mechanics, general review of physics topics related to the subject, trigonometric ratios of angles, vector and non-vector quantities.	Lecture	Oral and written exams
II and III	3	Understanding applying the lecture	Analysis and composition of forces, the law of triangle of forces and polygon of forces.	Lecture	Oral and written exams
Fourth	3	Understanding applying the lecture	The determination of the forces.	Lecture	Oral and written exams
V	3	Understanding applying the lecture	Doubles .	Lecture	Oral and written exams
Sixth and the seventh	3	Understanding applying the lecture	The result of converging, non-converging and parallel forces.	Lecture	Oral and written exams
Eighth	3	Understanding applying the lecture	Scattered weights.	Lecture	Oral and written exams
Ninth and the tenth	3	Understanding applying the lecture	Equilibrium, drawing a free body diagram, equilibrium equations, equilibrium in the case of converging, non-convergent and parallel forces.	Lecture	Oral and written exams
Eleventh	3	Understanding applying the lecture	Types of tributaries, types of supports, balance in tributaries.	Lecture	Oral and written exams
Twelfth and	3	Understanding	Gables, analysis of gables by joint and	Lecture	Oral and written exams

thirteenth		applying the lecture	section methods.		exams
Fourteenth and fifteenth	3	Understanding applying the lecture	Friction, nature of friction, theory of friction, laws of friction, types of friction, gernal applications	Lecture	Oral and writ exams
Sixteenth seventeenth	3	Understanding applying the lecture	Centers of gravity of simple and complex geometric shapes and their applications.	Lecture	Oral and writ exams
Eighteenth and nineteenth	3	Understanding applying the lecture	The moment of inertial of simple and composite geometric shapes and their applications.	Lecture	Oral and writ exams
20 th	3	Understanding applying the lecture	Introduction to material resistance, definition of stresses and their types, safety coefficient.	Lecture	Oral and writ exams
Twenty-first	3	Understanding applying the lecture	Applications on stresses.	Lecture	Oral and writ exams
Twenty-second	3	Understanding applying the lecture	Emotion, Hooke's law, the relationship of emotion to stress.	Lecture	Oral and writ exams
Twenty-third	3	Understanding applying the lecture	Lateral strain, Poisson ratio, applications on strain and stress.	Lecture	Oral and writ exams
Twenty-fourth	3	Understanding applying the lecture	Shear diagrams and bending moments for bridges, how to form equations of shear change and bending moment.	Lecture	Oral and writ exams
Twenty-fifth	3	Understanding applying the lecture	Applications on drawing shear equations	Lecture	Oral and writ exams
Twentysixth and the twer seventh	3	Understanding applying the lecture	Bending stress for bridges and their applications.	Lecture	Oral and writ exams
Twenty-eighth	3	Understanding applying the lecture	Shear stress for bridges and their applications.	Lecture	Oral and writ exams
Twenty ninth Thirty	3	Understanding applying the lecture	Bridges made of two different materials and their applications.	Lecture	Oral and writ exams

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)	Engineering mechanics book
Main references (sources)	Power analysis book

Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:	
Civil Drawing	
2.Course Code:	
There isn't	
3.Semester / Year:	
Annual	
4.Description Preparation Date:	
3/11/2024	
5.Available Attendance Forms:	
Attendance in the classroom	
6.Number of Credit Hours (Total) / Number of Units (Total)	
30 ours / 2 unit	
7.Course administrator's name (mention all, if more than one name)	
Name: Mohammed Zaki Salman Email: mohammed.z.salman.iba3@atu.edu.iq	
8.Course Objectives	
Course Objectives	The student learned the construction details and details of all construction works to be qualified to understand and transfer executive plans It provides information on the work site and the work to be implemented, as well as teaches the student the proven principles of preparing groups Executive maps.
9.Teaching and Learning Strategies	
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role

	facilitating the learner's learning, and the learner is an active participant in teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role facilitating the learner's learning, and the learner is an active participant in teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,
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10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	3	Understanding and applying the lecture	Introduction to structural drawing architectural and idiomatic symbols, lines in maps, drawing models for building and construction materials, scale, executive maps and types of building with bricks and blocks	Lecture	Daily, quarterly and annual exams
Second	3	Understanding and applying the lecture	Drawing the horizontal plan of residential house or small building and the plan of the first floor and determining the longitudinal and transverse sections and facades	Lecture	Daily, quarterly and annual exams
Third	3	Understanding and applying the lecture	Drawing longitudinal and transverse sections and detailed sections of the finishing layers floors, ceilings and flatness.	Lecture	Daily, quarterly and annual exams
Fourth	3	Understanding and applying the lecture	Introduction to the sanitary drawing and compositions of water and sanitary installations and sanitary furniture, and then drawing a network of water and sanitary installations for the previous horizontal plans.	Lecture	Daily, quarterly and annual exams
V	3	Understanding and applying the lecture	Drawing the structural details of the inspection basins and linking them with the network of health establishments.	Lecture	Daily, quarterly and annual exams
Sixth	3	Understanding and applying the lecture	Drawing the structural details of the rotting and storage basins (cesspool) attached to the Dar plan.	Lecture	Daily, quarterly and annual exams
Seventh	3	Understanding and applying the lecture	Introduction to concrete and construction principles, bearing concrete types and steel reinforcement necessary and types and drawing symbols used in maps and structural details.	Lecture	Daily, quarterly and annual exams
Eighth	3	Understanding and applying the lecture	Concrete slabs are of all kinds, transfer of loads through them and the necessary reinforcement, with drawing the structural details of the solid one-way slabs.	Lecture	Daily, quarterly and annual exams
Ninth	3	Understanding and applying the lecture	Drawing the structural details of two-way solid tiles.	Lecture	Daily, quarterly and annual exams
X	3	Understanding and	Drawing the structural details of	Lecture	Daily, quarterly and

		applying the lecture	single- and bidirectional polygo tiles.		annual exams
Eleventh	3	Understanding and applying the lecture	Introduction / types of concrete joists and drawing the structural details of simple supports with sections.	Lecture	Daily, quarterly a annual exams
Twelfth	3	Understanding and applying the lecture	Drawing structural details of continuous joists and sections.	Lecture	Daily, quarterly a annual exams
Thirteenth	3	Understanding and applying the lecture	Drawing the structural details of the monofilament joists with the sections.	Lecture	Daily, quarterly a annual exams
Fourteenth	3	Understanding and applying the lecture	Introduction with drawing the structural details of precast pre-cast joists.	Lecture	Daily, quarterly a annual exams
Fifteenth	3	Understanding and applying the lecture	Drawing a horizontal plan (key for the joists of a skeleton build and fixing the tables and details the joists.	Lecture	Daily, quarterly a annual exams
Sixteenth	3	Understanding and applying the lecture	Drawing the structural details of the types of concrete columns, drawing longitudinal and transverse sections and showing the reinforcement of the column.	Lecture	Daily, quarterly a annual exams
Seventeenth	3	Understanding and applying the lecture	Drawing structural details and vertical sections to illustrate the interconnection of reinforcing s for the columns of successive floors.	Lecture	Daily, quarterly a annual exams
Eighteenth	3	Understanding and applying the lecture	Introduction to the foundations types and the principle of their work, and drawing the structural details of the single foundation, common, foundations of walls.	Lecture	Daily, quarterly a annual exams
Nineteenth	3	Understanding and applying the lecture	Drawing the structural details of the continuous foundations and matting foundations.	Lecture	Daily, quarterly a annual exams
20 th	3	Understanding and applying the lecture	Drawing the structural details of the foundations of the pillars and their types with the hat.	Lecture	Daily, quarterly a annual exams
Twentyfirst	3	Understanding and applying the lecture	Identify concrete stairs and their types, straight ladder, half straight ladder, spiral ladder, with drawing structural details for them.	Lecture	Daily, quarterly a annual exams
Twenty-second	3	Understanding and applying the lecture	Drawing the structural details of the joints in buildings, expansion joints, structural joints.	Lecture	Daily, quarterly a annual exams
Twenty-third	3	Understanding and applying the lecture	Drawing the structural details of the reinforced walls of elevator and basement walls.	Lecture	Daily, quarterly a annual exams
Twenty-fourth	3	Understanding and applying the lecture	Introduction to factory and prefabricated construction and drawing structural details for the interconnection of walls with prefabricated ceilings.	Lecture	Daily, quarterly a annual exams
Twenty-fifth	3	Understanding and applying the lecture	Introduction to steel structures, sections, tables and how to obtain specifications and details of sections from them.	Lecture	Daily, quarterly a annual exams
Twenty-sixth	3	Understanding and applying the lecture	Drawing the structural details of the interconnection of steel parts according to their weight	Lecture	Daily, quarterly a annual exams

			tolerance.		
Twenty-seven	3	Understanding and applying the lecture	Interconnection of steel foundations and bases, interconnection of steel column interconnection of joists with each other.	Lecture	Daily, quarterly and annual exams
Twenty-eight	3	Understanding and applying the lecture	Details of the drawing of the steel gable and the interconnection of sides.	Lecture	Daily, quarterly and annual exams
Twenty-ninth and thirty-ninth	3	Understanding and applying the lecture	The use of computers and its applications in the structural drawing of reinforced concrete structures.	Lecture	Daily, quarterly and annual exams

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)	Civil drawing book
Main references (sources)	AutoCAD drawing book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:	
English Language	
2.Course Code:	
There isn't	
3.Semester / Year:	
Annual	
4.Description Preparation Date:	
3/11/2024	
5.Available Attendance Forms:	
Attendance in the classroom	
6.Number of Credit Hours (Total) / Number of Units (Total)	
30Hours / 2 unit	
7.Course administrator's name (mention all, if more than one name)	
Name: Lath kareem Email: Laith1978@atu.edu.iq	
8.Course Objectives	
Course	This course aims to teach the student the tenses of sentences in the English language

Objectives	and the parts of speech in addition to expressions. Social and traits.
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9. Teaching and Learning Strategies

Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First and second	1	Understanding applying the lecture	Tenses-Questions- Usin aBilingual Dictionary	Lecture	Daily oral, quart and annual tests.
Third and fourth	1	Understanding applying the lecture	Present Tenses- have/have got	Lecture	Daily oral, quart and annual tests.
Fifth and sixth	1	Understanding applying the lecture	Past Tenses –Word Formation- Time Expressions	Lecture	Daily oral, quart and annual tests.
VII-IX	1	Understanding applying the lecture	Much/Many- Some/Any- a Few, a Little , a Lot of- articles- shopping- prices	Lecture	Daily oral, quart and annual tests.
Tenth and eleventh	1	Understanding applying the lecture	Verb Patterns 1- Future Forms – Hot verbs- How do you feel?	Lecture	Daily oral, quart and annual tests.
Twelfth and thirteenth	1	Understanding applying the lecture	What.... like?- Comparatives and Superlative – Synonyms and Antonyms- Directions	Lecture	Daily oral, quart and annual tests.
Fourteenth and fifteenth	1	Understanding applying the lecture	Present Perfect- For , Since- adverbs , word pairs – Short Answers	Lecture	Daily oral, quart and annual tests.
XVI-XVIII	1	Understanding applying the lecture	Have(got)to – should/must- words that go together- at the doctors	Lecture	Daily oral, quart and annual tests.
Nineteenth and	1	Understanding	Time Clauses- if- Hot	Lecture	Daily oral, quart

Twenty		applying the lecture	Verbs – in a hotel		and annual tests.
Twenty one and twenty second	1	Understanding applying the lecture	Verb Patterns 2 – manage to, used to _-ed /-ing adjective – Exclamations	Lecture	Daily oral, quart and annual tests.
Twenty-third and twenty-fourth	1	Understanding applying the lecture	Passives- Verbs and Nouns that go together- notices	Lecture	Daily oral, quart and annual tests.
Twenty-fifth and twenty-sixth	1	Understanding applying the lecture	Second Conditional- might- phrasal verbs – social expressions ²	Lecture	Daily oral, quart and annual tests.
Twenty-seventh and twenty-eighth	1	Understanding applying the lecture	Present Perfect Continuous- word formation – adverbs- telephoning	Lecture	Daily oral, quart and annual tests.
Twenty-ninth and thirtieth	1	Understanding applying the lecture	Past Perfect – Reported Statements- saying goodbye	Lecture	Daily oral, quart and annual tests.

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)	English language book
Main references (sources)	English language book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:
Buildings and Fabricating Building
2.Course Code:
There isn't
3.Semester / Year:
Annual
4.Description Preparation Date:
3/11/2024
5.Available Attendance Forms:
Attendance in the classroom
6.Number of Credit Hours (Total) / Number of Units (Total)
60Hours / 4 unit
7.Course administrator's name (mention all, if more than one name)
Name: Ali Mohammed Ali

Email: ali_mohammed_ali@atu.edu.iq

8.Course Objectives

Course Objectives	General objective of the course: Providing the student with the necessary information about the stages of implementation of traditional and manufactured buildings and works Which is included in each stage and the appropriate construction machines for each work. Specific objective of the course: To enable the student to organize the site, direct the work, supervise its implementation, and teach the student Basic principles and supervision of factory construction.
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9.Teaching and Learning Strategies

Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,
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10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	2	Understanding and applying the lecture	Introduction to the methods of implementing construction projects and related parties	Lecture	Daily, quarterly and annual exams
Second	2	Understanding and applying the lecture	Organization and planning of the work site and the factors that affect it with the preparation	Lecture	Daily, quarterly and annual exams
Third	2	Understanding and applying the lecture	Earth excavations, Excavation side support methods, Basement excavation	Lecture	Daily, quarterly and annual exams
Fourth	2	Understanding and applying the lecture	Techniques used in groundwater withdrawal during construction	Lecture	Daily, quarterly and annual exams
V	2	Understanding and applying the lecture	Dirt spelling and the correct ways to make it Layers of roads and	Lecture	Daily, quarterly and annual exams
Sixth	2	Understanding and applying the lecture	Moisture neutral layers for	Lecture	Daily, quarterly and annual

			basements and walls,		exams
Seventh	2	Understanding and applying the lecture	Construction of walls with bricks, types of bricks, connecting methods, seams	Lecture	Daily, quarterly and annual exams
Eighth	2	Understanding and applying the lecture	Construction of walls with stone (types of stone preparation, types of bonding,	Lecture	Daily, quarterly and annual exams
Ninth	2	Understanding and applying the lecture	Building walls with structural blocks (types of blocks and their specifications).	Lecture	Daily, quarterly and annual exams
X	2	Understanding and applying the lecture	Techniques for finishing walls from the inside of all kinds.	Lecture	Daily, quarterly and annual exams
Eleventh	2	Understanding and applying the lecture	Techniques for finishing walls from the outside of all kinds.	Lecture	Daily, quarterly and annual exams
Twelfth	2	Understanding and applying the lecture	Methods of finishing the floors of the ground floor and other floors and ceilings.	Lecture	Daily, quarterly and annual exams
Thirteenth	2	Understanding and applying the lecture	Thermal insulation technologies	Lecture	Daily, quarterly and annual exams
Fourteenth	2	Understanding and applying the lecture	Concrete formwork (types, requirements, components)	Lecture	Daily, quarterly and annual exams
Fifteenth	2	Understanding and applying the lecture	Lifting formwork, causes of mold breakdown, sliding molds and related techniques	Lecture	Daily, quarterly and annual exams
Sixteenth	2	Understanding and applying the lecture	Scaffolding (types, components, safety factors)	Lecture	Daily, quarterly and annual exams
Seventeenth	2	Understanding and applying the lecture	Secondary ceilings (types and methods of installation) and installation of air ducts	Lecture	Daily, quarterly and annual exams
Eighteenth	2	Understanding and applying the lecture	Sanitary installations (clear water, sewage) types of pipes used for each of them and methods of connection and fixation.	Lecture	Daily, quarterly and annual exams
Nineteenth	2	Understanding and applying the lecture	Doors and windows (types, requirements, components)	Lecture	Daily, quarterly and annual exams
20 th	2	Understanding and applying the lecture	Joints in buildings (structural joints, expansion joints) details of each type and methods of implementation	Lecture	Daily, quarterly and annual exams

Twenty-first and the twenty second	2	Understanding and applying the lecture	Low-cost construction and cost rationalization methods (objectives, requirements, construction methods).	Lecture	Daily, quarterly and annual exams
Twenty-third	2	Understanding and applying the lecture	Factory construction (properties, supplies)	Lecture	Daily, quarterly and annual exams
Twenty-fourth	2	Understanding and applying the lecture	The different varieties of factory construction and the characteristics of each type	Lecture	Daily, quarterly and annual exams
Twenty-fifth	2	Understanding and applying the lecture	Factory construction lab components and production method	Lecture	Daily, quarterly and annual exams
Twenty-sixth Twenty-seventh	2	Understanding and applying the lecture	Details of the structural members in the factory building and methods of their installation	Lecture	Daily, quarterly and annual exams
Twenty eighth	2	Understanding and applying the lecture	Joints in factory construction (types, components, methods of implementation)	Lecture	Daily, quarterly and annual exams
Twenty-ninth	2	Understanding and applying the lecture	Methods of transportation in buildings, stairs, elevators (types, components, construction methods)	Lecture	Daily, quarterly and annual exams
Xxx	2	Understanding and applying the lecture	Fire resistance of buildings and fire control systems.	Lecture	Daily, quarterly and annual exams

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)	Building construction book
Main references (sources)	Sons of the Ready book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:					
Surveying (2)					
2.Course Code:					
There isn't					
3.Semester / Year:					
Annual					
4.Description Preparation Date:					
3/11/2024					
5.Available Attendance Forms:					
Attendance in the classroom					
6.Number of Credit Hours (Total) / Number of Units (Total)					
90Hours / 6 unit					
7.Course administrator's name (mention all, if more than one name)					
Name: Ali mohammed ali Email: ali_mohammed_ali@atu.edu.iq					
8.Course Objectives					
Course Objectives	This course aims to teach the student to use angle measuring devices (theodolites) and practice applications Various features of this device include raising polygons and beams, triangulation work, project curves, and the rest of the work that It is needed in civil works.				
9.Teaching and Learning Strategies					
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,				
10.Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	4	Understanding and applying the lecture	Definitions of theodolite parts / parts,	Lecture	Daily, quarterly, annual and

			uses, types, installation of the device, reading the horizontal and vertical directions of different types.		practical tests
Second	4	Understanding and applying the lecture	Checking and adjusting the theodolite device for all types of vertical and horizontal examinations and then finding the device constant.	Lecture	Daily, quarterly, annual and practical tests
Third	4	Understanding and applying the lecture	Methods of measuring angles with theodolite device.	Lecture	Daily, quarterly, annual and practical tests
Fourth	4	Understanding and applying the lecture	Ribbing, types of polygons, their purposes, uses.	Lecture	Daily, quarterly, annual and practical tests
V	4	Understanding and applying the lecture	Measure and correct the internal horizontal angles of a closed polygon.	Lecture	Daily, quarterly, annual and practical tests
Sixth	4	Understanding and applying the lecture	Methods of measuring the horizontal distances of the sides of a polygon.	Lecture	Daily, quarterly, annual and practical tests
Seventh	4	Understanding and applying the lecture	Draw closed and open polygons.	Lecture	Daily, quarterly, annual and practical tests
Eighth	4	Understanding and applying the lecture	Lifting the beams of the polygons with theodolite and tape device.	Lecture	Daily, quarterly, annual and practical tests
Ninth	4	Understanding and applying the lecture	calculate horizontal and vertical components of polygon sides and calculate coordinates.	Lecture	Daily, quarterly, annual and practical tests
X	4	Understanding and applying the lecture	Calculate horizontal components, vertical components and coordinates of an open polygon.	Lecture	Daily, quarterly, annual and practical tests
Eleventh	4	Understanding and applying the lecture	Methods of measuring vertical angles with theodolite device.	Lecture	Daily, quarterly, annual and practical tests
Twelfth	4	Understanding and applying the lecture	Find the height of a building (target) that can be reached using the theodolite device	Lecture	Daily, quarterly, annual and practical tests
Thirteenth	4	Understanding and applying the lecture	Finding the height of a building (target) that cannot be reached using theodolite device	Lecture	Daily, quarterly, annual and practical tests
Fourteenth	4	Understanding and applying the lecture	Finding the height of a building (target) by measuring three angles of rise or fall in the theodolite device	Lecture	Daily, quarterly, annual and practical tests
Fifteenth	4	Understanding and applying the lecture	Curves / types, horizontal curves types (circle and fold)	Lecture	Daily, quarterly, annual and practical tests
Sixteenth	4	Understanding and	Elements of the	Lecture	Daily, quarterly,

		applying the lecture	horizontal curve (elements of a simple circular curve) and the equations used in the design of a simple circular curve		annual and practical tests
Seventeenth	4	Understanding and applying the lecture	Draw a path with its horizontal curves.	Lecture	Daily, quarterly, annual and practical tests
Eighteenth	4	Understanding and applying the lecture	Convex and concave main curves / their elements / calculation of the length of the vertical curve, calculations related to them	Lecture	Daily, quarterly, annual and practical tests
Nineteenth	4	Understanding and applying the lecture	Projection of the vertical curve on the ground	Lecture	Daily, quarterly, annual and practical tests
20 th	4	Understanding and applying the lecture	Triangulation, its purposes, use, selection of triangulation points, triangulation networks.	Lecture	Daily, quarterly, annual and practical tests
Twenty-first	4	Understanding and applying the lecture	Measuring the base line for triangulation and making fortifications for tape measurement.	Lecture	Daily, quarterly, annual and practical tests
Twenty-second	4	Understanding and applying the lecture	Measuring the horizontal angles of the triangulation network, calculations and making the necessary fortifications for the triangulation network.	Lecture	Daily, quarterly, annual and practical tests
Twenty-third	4	Understanding and applying the lecture	Tachometric survey, types of tachometer devices.	Lecture	Daily, quarterly, annual and practical tests
Twenty-fourth	4	Understanding and applying the lecture	Ribbing by leveling with a tachimetric device	Lecture	Daily, quarterly, annual and practical tests
Twenty-fifth	4	Understanding and applying the lecture	Ribbing leveling with a pediatric device Telescope	Lecture	Daily, quarterly, annual and practical tests
Twenty-sixth	4	Understanding and applying the lecture	Identify electronic measuring devices and how to use them to measure horizontal and vertical distances of several types.	Lecture	Daily, quarterly, annual and practical tests
Twenty-seventh	4	Understanding and applying the lecture	Triangulation using side lengths of triangles measured by electronic devices	Lecture	Daily, quarterly, annual and practical tests
Twenty-eighth, twenty-ninth and thirtieth	4	Understanding and applying the lecture	A general project on the construction of a road with the horizontal and vertical curves necessary to complete it with its drawing.	Lecture	Daily, quarterly, annual and practical tests

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)	Survey book
Main references (sources)	Surveying engineering book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet Sites

Course Description Form

1.Course Name:	
Project	
2.Course Code:	
There isn't	
3.Semester / Year:	
Annual	
4.Description Preparation Date:	
3/11/2024	
5.Available Attendance Forms:	
Attendance	
6.Number of Credit Hours (Total) / Number of Units (Total)	
60 ours / 4 unit	
7.Course administrator's name (mention all, if more than one name)	
Name: All department teachers	
Email:	
8.Course Objectives	
Course Objectives	Teaching students how to prepare scientific and applied research and projects in various field of work. Also education The student is taught how to search for scientific sources and how to conduct research and projects with the help of specialized professors In the department, using department and institute laboratory equipment, and seeking assistance from state departments if necessary according to the nature of the matter Project.
9.Teaching and Learning Strategies	
Strategy	1. Competitive Learning - 2. Individual learning -

	3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,
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10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
I-XXXI	2	Understand, apply and write a project	Explain the idea of the topic, the materials used, the proposed implementation method, the practical implementation of the project, and the analysis and discussion of the results obtained	Lecture	Oral, quarterly and annual exams and annual discussion

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)	All methodical books
Main references (sources)	Central library books
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:
Construction Equipment
2.Course Code:
There isn't
3.Semester / Year:
Annual
4.Description Preparation Date:

3/11/2024					
5.Available Attendance Forms:					
Attendance in the classroom					
6.Number of Credit Hours (Total) / Number of Units (Total)					
60Hours / 4 unit					
7.Course administrator's name (mention all, if more than one name)					
Name: Fatima Asead mahde					
Email: Fatima.mahdi.iba101@atu.edu.iq					
8.Course Objectives					
Course Objectives	Enabling the student to know the mechanisms used in projects and how to use them, as well as determining the productivity of the machines As well as operating and supervising it and its good completion of work.				
9.Teaching and Learning Strategies					
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,				
10.Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	2	Understanding and apply the lecture	Construction equipment, the importance of machines, ways to obtain them, and the advantages and disadvantages of owning or renting machines, with a scientific film.	Lecture	Daily, quarterly annual exams
Second	2	Understanding and apply the lecture	Calculation of the cost and ownership of machinery (cost of extinction, investment, maintenance and repair).	Lecture	Daily, quarterly annual exams
Third	2	Understanding and apply the lecture	Completing the calculation of the cost and ownership of machinery, operating costs (fuel costs, oil costs, explanation of an integrated accounting	Lecture	Daily, quarterly annual exams

			question about calculating all costs).		
Fourth	2	Understanding and apply the lecture	Special machines, standard machines, and the trade-off between them with the presentation of a scientific film.	Lecture	Daily, quarterly annual exams
V	2	Understanding and apply the lecture	The engineering foundations of engineering machinery work, including (resistance to movement and the effect of inclination)	Lecture	Daily, quarterly annual exams
Sixth	2	Understanding and apply the lecture	Complementing the engineering foundations of engineering machinery works (the effect of height, swelling and contraction of the soil at the expense of volumes)	Lecture	Daily, quarterly annual exams
Seventh	2	Understanding and apply the lecture	Quarry (Dozer includes: description of the machine, types, productivity calculation) with the presentation of a scientific film.	Lecture	Daily, quarterly annual exams
Eighth	2	Understanding and apply the lecture	Shovel loading (shuffle) includes (types, difference between them, calculation of productivity, work cycle shuffle, work coordination) with the presentation of two scientific films.	Lecture	Daily, quarterly annual exams
Ninth	2	Understanding and apply the lecture	A scientific visit to one of the business sites where different machines are available.	Lecture	Daily, quarterly annual exams
X	2	Understanding and apply the lecture	Drilling Machinery, Comprehensive Excavator, Face Excavator with Scientific Film Show.	Lecture	Daily, quarterly annual exams
Eleventh	2	Understanding and apply the lecture	Drilling machines (rear shovel, hemophilia shovel, oyster shovel) with scientific film presentation.	Lecture	Daily, quarterly annual exams
Twelfth	2	Understanding and apply the lecture	Machinery of transport units, tiled and untiled road trucks, classification of trucks according to multiple factors, tippers, productivity calculation with the presentation of a scientific film.	Lecture	Daily, quarterly annual exams

Thirteenth	2	Understanding and apply the lecture	Balancing the number of tippers with the size of drilling machines, lorries, locomotives and trailers, railway trucks.	Lecture	Daily, quarterly annual exams
Fourteenth	2	Understanding and apply the lecture	Terraces include (types and benefits with productivity calculation) with the presentation of a scientific film.	Lecture	Daily, quarterly annual exams
Fifteenth	2	Understanding and apply the lecture	Skimmers, types, benefits, and productivity calculation with the presentation of a scientific film	Lecture	Daily, quarterly annual exams
Sixteenth	2	Understanding and apply the lecture	Skimmer productivity Use the skimmer performance chart in calculating productivity.	Lecture	Daily, quarterly annual exams
Seventeenth	2	Understanding and apply the lecture	A scientific visit to one of the business sites with the presentation of a scientific film.	Lecture	Daily, quarterly annual exams
Eighteenth	2	Understanding and apply the lecture	Soil compaction machines and their importance includes their types and places of use with the presentation of a scientific film.	Lecture	Daily, quarterly annual exams
Nineteenth	2	Understanding and apply the lecture	Complement of duction machines and calculation of productivity, pressure bulb theory for weight distribution.	Lecture	Daily, quarterly annual exams
20 th	2	Understanding and apply the lecture	Complement of vibratory valves - calculation of productivity - vibration	Lecture	Daily, quarterly annual exams
Twenty-first	2	Understanding and apply the lecture	Material mixing equipment for concrete work with a scientific film presentation.	Lecture	Daily, quarterly annual exams
Twenty-second	2	Understanding and apply the lecture	Concrete compaction and polishing transport equipment.	Lecture	Daily, quarterly annual exams
Twenty-third	2	Understanding and apply the lecture	Asphalt production plants types and specifications.	Lecture	Daily, quarterly annual exams
Twenty-four	2	Understanding and apply the lecture	Specifications of mattresses for asphalt, speed of mattresses, types of mattresses with scientific film presentation.	Lecture	Daily, quarterly annual exams
Twenty-fifth	2	Understanding and apply the lecture	A scientific visit to asphalt production plants.	Lecture	Daily, quarterly annual exams
Twenty-six	2	Understanding and apply the lecture	Trenches types, calculation of production rates with the	Lecture	Daily, quarterly annual exams

			presentation of a scientific film.		
Twenty-seventh	2	Understanding and apply the lecture	Tunnels their importance, types with the presentation of a scientific film.	Lecture	Daily, quarterly annual exams
Twenty-eighth	2	Understanding and apply the lecture	Tunnel construction with mechanical excavators, ventilation of tunnels with a scientific film screening.	Lecture	Daily, quarterly annual exams
Twenty-ninth	2	Understanding and apply the lecture	Conveyor belts, calculation of transportation costs with conveyor belts Conveyor belt parts	Lecture	Daily, quarterly annual exams
Xxx	2	Understanding and apply the lecture	The use of modern control systems in construction machines with the presentation of a scientific film of its own.	Lecture	Daily, quarterly annual exams

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)	Construction equipment book
Main references (sources)	Construction machinery book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:
Computer 2
2.Course Code:
There isn't
3.Semester / Year:
Annual
4.Description Preparation Date:
3/11/2024
5.Available Attendance Forms:
Attendance in the classroom

6.Number of Credit Hours (Total) / Number of Units (Total)					
60 ours / 4 unit					
7.Course administrator's name (mention all, if more than one name)					
Name: manar hamed jasim Email: manar.jasim@atu.edu.iq					
8.Course Objectives					
Course Objectives	Teaching the student how to use ready-made systems and their applications completing civil fees.				
9.Teaching and Learning Strategies					
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,				
10.Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	3	Understanding and apply the lecture	General review of AutoCAD software.	Lecture	Daily, quarterly, annual and practical tests
Second	3	Understanding and apply the lecture	Redo Draw, Modify, Osnap menu apps.	Lecture	Daily, quarterly, annual and practical tests
Third	3	Understanding and apply the lecture	Complete dimensions, write, and command View.	Lecture	Daily, quarterly, annual and practical tests
Fourth	3	Understanding and apply the lecture	Principles of three-dimensional drawing, Surface Triple Cortical Drawing List .	Lecture	Daily, quarterly, annual and practical tests
V	3	Understanding and apply the lecture	List of solid tripartite drawings Solids.	Lecture	Daily, quarterly, annual and practical tests
Sixth	3	Understanding and apply the lecture	Applications on Extrad, Revolve _ Slice commands.	Lecture	Daily, quarterly, annual and practical tests
Seventh	3	Understanding and apply the lecture	Solidediting revisions.	Lecture	Daily, quarterly, annual and practical tests

Eighth	3	Understanding and apply the lecture	Applications about Union,Substruct commands.	Lecture	Daily, quarterly, annual and practice tests
Ninth	3	Understanding and apply the lecture	Complete Solid editing commands.	Lecture	Daily, quarterly, annual and practice tests
X	3	Understanding and apply the lecture	Create a simple building with three dimensions.	Lecture	Daily, quarterly, annual and practice tests
Eleventh	3	Understanding and apply the lecture	Completion of the previous building.	Lecture	Daily, quarterly, annual and practice tests
Twelfth	3	Understanding and apply the lecture	Making a model of a horizontal section in a building (residential house) and furnishing it.	Lecture	Daily, quarterly, annual and practice tests
Thirteenth	3	Understanding and apply the lecture	Complete the previous form.	Lecture	Daily, quarterly, annual and practice tests
Fourteenth Fifteenth	3	Understanding and apply the lecture	Making a longitudinal section model in a building (residential house) with furnishing.	Lecture	Daily, quarterly, annual and practice tests
Sixteenth	3	Understanding and apply the lecture	Design principles Rendering.	Lecture	Daily, quarterly, annual and practice tests
Seventeenth	3	Understanding and apply the lecture	Add lighting to the scene.	Lecture	Daily, quarterly, annual and practice tests
Eighteenth	3	Understanding and apply the lecture	Add materials to surfaces.	Lecture	Daily, quarterly, annual and practice tests
Nineteenth	3	Understanding and apply the lecture	Manufacture of materials for demonstration.	Lecture	Daily, quarterly, annual and practice tests
20 th	3	Understanding and apply the lecture	Other effects in the scene: night lighting, wallpapers.	Lecture	Daily, quarterly, annual and practice tests
Twenty-first Twenty-ninth	3	Understanding and apply the lecture	A project of making a model of a multi-storey building with the addition of other supplements: trees, cars, people A simple introduction to the programs parallel to AutoCAD (3DMax).	Lecture	Daily, quarterly, annual and practice tests
Xxx	3	Understanding and apply the lecture	Using additional processors for the completed image _ AutoCAD by the program (Photo Shop).	Lecture	Daily, quarterly, annual and practice tests

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)	Computer software book
Main references (sources)	Modern programming book
Recommended books and references (scientific journals, reports...)	lecturer
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:	
Technology of Construction	
2.Course Code:	
There isn't	
3.Semester / Year:	
Annual	
4.Description Preparation Date:	
3/11/2024	
5.Available Attendance Forms:	
Attendance in the classroom	
6.Number of Credit Hours (Total) / Number of Units (Total)	
120Hours / 8 unit	
7.Course administrator's name (mention all, if more than one name)	
Name: Kareem fadel abod Email: inb.krm@atu.edu.iq	
8.Course Objectives	
Course Objectives	The student takes technical skill and qualifications to carry out construction and construction work to be qualified upon graduation.
9.Teaching and Learning Strategies	
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include

brainstorming,

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	4	Understanding and applying the lecture	Planning foundations, using surveying devices.	Lecture	Daily, quarterly and annual exams
Second	4	Understanding and applying the lecture	Excavations, and attribution of the sides of the excavation.	Lecture	Daily, quarterly and annual exams
Third	4	Understanding and applying the lecture	Work and reinforcement of the foundation for a wall or support.	Lecture	Daily, quarterly and annual exams
Fourth	4	Understanding and applying the lecture	Presentation of a scientific film of the works of the pillars, types and how they work and the machines used for that.	Lecture	Daily, quarterly and annual exams
V and the sixth	4	Understanding and applying the lecture	Brick construction, English bonding, German bonding, other types of brickwork.	Lecture	Daily, quarterly and annual exams
Seventh	4	Understanding and applying the lecture	Building by blocks (block, thermestone).	Lecture	Daily, quarterly and annual exams
Eighth and ninth	4	Understanding and applying the lecture	Wooden mold works, training in making wooden mold for column, bridge, stairs and roofs.	Lecture	Daily, quarterly and annual exams
X	4	Understanding and applying the lecture	Plating regular and reinforced concrete and using manual knocking, as well as training in automatic mixing.	Lecture	Daily, quarterly and annual exams
Eleventh	4	Understanding and applying the lecture	A scientific visit to the work site of wooden mold and concrete pouring.	Lecture	Daily, quarterly and annual exams
Twelfth and thirteenth	4	Understanding and applying the lecture	Armament works, rebar, the correct way to use it, making reinforcing models for a column, roof and bridge.	Lecture	Daily, quarterly and annual exams
Fourteenth	4	Understanding and applying the lecture	Steel works, steel structural sections and aluminum profiles, and when they are not available, a scientific	Lecture	Daily, quarterly and annual exams

			film was presented for that.		
Fifteenth	4	Understanding and applying the lecture	Application Balkashi and Steiker.	Lecture	Daily, quarterly and annual exams
Sixteenth And theseventeenth	4	Understanding and applying the lecture	Moisture suppressant works, training on the use of some moisture inhibitors and how to use them optimally such as asphalt felt, bituminous materials and according to what is available.	Lecture	Daily, quarterly and annual exams
Eighteenth	4	Understanding and applying the lecture	Presentation of a scientific film on thermal insulation materials: types, how to use them and their benefits.	Lecture	Daily, quarterly and annual exams
Nineteenth	4	Understanding and applying the lecture	Whiteness work, whiteness of a wall using plaster.	Lecture	Daily, quarterly and annual exams
20th and the twenty-first	4	Understanding and applying the lecture	Ficus and prose works: Using cement mortar. Using cement mortar - Noura.	Lecture	Daily, quarterly and annual exams
Twenty-second	4	Understanding and applying the lecture	Packaging works with furfur cashes.	Lecture	Daily, quarterly and annual exams
Twenty-third	4	Understanding and applying the lecture	Wall wrapping works, wall packaging using solutions.	Lecture	Daily, quarterly and annual exams
Twenty-fourth	4	Understanding and applying the lecture	Secondary ceilings (Moroccan), making a model of a Moroccan roof, training on how to install them.	Lecture	Daily, quarterly and annual exams
Twenty-fifth	4	Understanding and applying the lecture	Painting work (training on how to use it and the suitability of each type on the dyed surface).	Lecture	Daily, quarterly and annual exams
Twenty-sixth	4	Understanding and applying the lecture	Sanitary works: Training the student on how to extend sewage pipes, clear water pipes, basins sites, bathtubs, toilets, etc.	Lecture	Daily, quarterly and annual exams
Twenty seventh	4	Understanding and applying the lecture	Electrical works: Training the student on the work of the wrangles and the	Lecture	Daily, quarterly and annual exams

			correct termination around them and how to install some light bulbs (establishing a point of light and block).		
Twenty-eighth	4	Understanding and applying the lecture	Mechanical works: work of ventilation ducts (i.e. duct work for refrigeration).	Lecture	Daily, quarterly and annual exams
Twenty-ninth Thirty	4	Understanding and applying the lecture	Road works are the foundation and under the foundation of a road (as a model).	Lecture	Daily, quarterly and annual exams

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)	Construction techniques booklet
Main references (sources)	Construction methods book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:
Concrete technology
2.Course Code:
There isn't
3.Semester / Year:
Annual
4.Description Preparation Date:
3/11/2024
5.Available Attendance Forms:
Attendance in the classroom
6.Number of Credit Hours (Total) / Number of Units (Total)
120 hrs / 8 unit
7.Course administrator's name (mention all, if more than one name)
Name: Dr. Mohammed Kareem abd Email: mohammed_k1965@atu.edu.iq

8.Course Objectives

Course Objective	This course aims to enable the student to acquire a skill that can be used in carrying out construction work to be able to... Practicing the technical work assigned to him.
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9.Teaching and Learning Strategies

Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,
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10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	4	Understanding and applying the lecture	General review of the materials involved in concrete. Definitions: Ordinary concrete, Reinforced concrete, Site casting concrete, Premixed concrete, Precast concrete, Pre-Voltage Concrete.	Lecture	Daily, quarterly, annual and practical tests
Second	4	Understanding and applying the lecture	Production and mixing of concrete, types of mixing, types of mixers, mixing time.	Lecture	Daily, quarterly, annual and practical tests
Third and fourth	4	Understanding and applying the lecture	Properties of soft concrete: workability and texture. Tests for soft concrete: fluidity test, penetration test, precipitation test, compaction factor test, reshaping test with frequency vibrations, and study of factors affecting operability.	Lecture	Daily, quarterly, annual and practical tests
Fifth and sixth	4	Understanding and applying the lecture	Properties of soft concrete: bleeding, separation, plastic	Lecture	Daily, quarterly, annual and

			shrinkage, and unit weight in soft concrete.		practical tests
Seventh and eighth	4	Understanding and applying the lecture	The effect of air vacuums and methods of measuring them, calculation of unit weight, output, cement factor in soft concrete, density equation and absolute volume equation for the calculation of concrete components.	Lecture	Daily, quarterly, annual and practical tests
Ninth	4	Understanding and applying the lecture	Transportation, pouring and compaction of ordinary concrete.	Lecture	Daily, quarterly, annual and practical tests
X	4	Understanding and applying the lecture	Maturation (processing) of concrete, casting in hot and cold climates .	Lecture	Daily, quarterly, annual and practical tests
Eleventh	4	Understanding and applying the lecture	Pumping concrete, properties of concrete in pumping, devices used in pumping.	Lecture	Daily, quarterly, annual and practical tests
Twelfth	4	Understanding and applying the lecture	Ready-mixed concrete: definition, benefits and production methods, mixer trucks and shaker trucks.	Lecture	Daily, quarterly, annual and practical tests
Thirteenth	4	Understanding and applying the lecture	Hardened concrete resistance, nature of concrete resistance, types of resistance.	Lecture	Daily, quarterly, annual and practical tests
Fourteenth	4	Understanding and applying the lecture	Concrete Strength Tests: Compressive Strength Test, Tensile Strength Test, (Bending Tensile Test and Fission Tensile Test).	Lecture	Daily, quarterly, annual and practical tests
Fifteenth	4	Understanding and applying the lecture	Factors affecting the resistance of hardened concrete. Factors affecting the results of hardened concrete resistance tests.	Lecture	Daily, quarterly, annual and practical tests
Sixteenth	4	Understanding and applying the lecture	Concrete shrinkage: drought shrinkage, contrast shrinkage, carbonization shrinkage.	Lecture	Daily, quarterly, annual and practical tests
Seventeenth	4	Understanding and applying the lecture	Concrete additives: definition, benefits and uses, the main materials involved in their composition, the observations to be	Lecture	Daily, quarterly, annual and practical tests

			taken when using them.		
Eighteenth	4	Understanding and applying the lecture	Types of additives: accelerators, slowers, plasticizers, air vacuum emitters, silica dust, bubbles, moisture suppressant, weight loss... Etc.	Lecture	Daily, quarterly, annual and practical tests
Nineteenth	4	Understanding and applying the lecture	Design of concrete mixes: A- The American way.	Lecture	Daily, quarterly, annual and practical tests
20 th	4	Understanding and applying the lecture	Design of concrete mixes: B - British way.	Lecture	Daily, quarterly, annual and practical tests
Twenty-first	4	Understanding and applying the lecture	Practical issues for the design of ordinary mixtures	Lecture	Daily, quarterly, annual and practical tests
Twenty-second	4	Understanding and applying the lecture	Applied issues for the design of mixtures containing additives.	Lecture	Daily, quarterly, annual and practical tests
Twenty-third	4	Understanding and applying the lecture	Non-destructive tests of concrete: radiation methods, hardness methods, pulse methods and resonance methods.	Lecture	Daily, quarterly, annual and practical tests
Twenty-fourth	4	Understanding and applying the lecture	The use of fibers in concrete such as fibers (plastic, glass, iron, wooden).	Lecture	Daily, quarterly, annual and practical tests
Twenty-fifth	4	Understanding and applying the lecture	The use of polymers (Polymers) in concrete, polymeric concrete.	Lecture	Daily, quarterly, annual and practical tests
Twenty-sixth	4	Understanding and applying the lecture	Special types of concrete: mass, light weight, heavy concrete, underwater concrete, pre-laid aggregate concrete (PAC).	Lecture	Daily, quarterly, annual and practical tests
Twenty-seventh Twenty-eighth	4	Understanding and applying the lecture	Special types of concrete: High Performance Concrete (HPC), High Strength Concrete (HSC), Self-Compacting Concrete (SCC), Effective Powder Concrete (RPC), Concrete Stacked (RCC).	Lecture	Daily, quarterly, annual and practical tests
Twenty-ninth Xxx	4	Understanding and applying the lecture	Repair, maintenance and treatment of concrete in buildings using some modern materials such as	Lecture	Daily, quarterly, annual and practical tests

			epoxy and carbon fiber.		
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)			Concrete technology book		
Main references (sources)			Concrete inspection book		
Recommended books and references (scientific journals, reports...)			Lectures		
Electronic References, Websites			Internet sites		

Course Description Form

1.Course Name:	
Soil mechanics	
2.Course Code:	
There isn't	
3.Semester / Year:	
Annual	
4.Description Preparation Date:	
3/11/2024	
5.Available Attendance Forms:	
Attendance in the classroom	
6.Number of Credit Hours (Total) / Number of Units (Total)	
120Hours /8 unit	
7.Course administrator's name (mention all, if more than one name)	
Name: Dr. Arkan Radi Ali Email: inb.arkn@atu.edu.iq	
8.Course Objectives	
Course Objectives	General objective of the course: To familiarize the student with the mechanical properties of soil through which he can estimate the risk of a choice Type of foundation and the effect of structures built on different types of soil. Specific objective of the course: To qualify the student and give him the necessary skill in classifying soil and conducting the necessary tests On it (field or laboratory) and its relationship to the facilities that will be built on it.
9.Teaching and Learning Strategies	
Strategy	1. Competitive Learning - 2. Individual learning -

3. Learning Cooperative Education strategies
4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems.
5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery.
6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	4	Understanding and applying the lecture	Definition of soil, geological introduction to rock types, how soil is formed from rocks.	Lecture	Daily, quarterly, annual and practical tests
Second	4	Understanding and applying the lecture	Soil components, physical properties of the soil (moisture content, porosity, percentage of voids, wet and dry density, saturated and submerged density, specific weight).	Lecture	Daily, quarterly, annual and practical tests
Third and fourth	4	Understanding and applying the lecture	Granular analysis of soil (sieves method and condensate method).	Lecture	Daily, quarterly, annual and practical tests
V	4	Understanding and applying the lecture	Soil plasticity properties (fluidity limit, plasticity limit, shrinkage limit).	Lecture	Daily, quarterly, annual and practical tests
Sixth and the seventh	4	Understanding and applying the lecture	Soil classification, using the Unified Classification System.	Lecture	Daily, quarterly, annual and practical tests
Eighth and ninth	4	Understanding and applying the lecture	Permeability, coarse soil permeability, soft soil permeability, field and laboratory measurement methods.	Lecture	Daily, quarterly, annual and practical tests
X	4	Understanding and applying the lecture	Types of soil stresses, total stress and effective stress.	Lecture	Daily, quarterly, annual and practical tests
Eleventh	4	Understanding and applying the lecture	Lateral Earth Pressure with an explanation of the types of filters.	Lecture	Daily, quarterly, annual and practical tests
Twelfth	4	Understanding and applying the lecture	Soil Stabilization, Compaction.	Lecture	Daily, quarterly, annual and practical tests
Thirteenth	4	Understanding and	Types of laboratory	Lecture	Daily,

		applying the lecture	compaction tests, field compaction methods.		quarterly, annual and practical tests
Fourteenth and fifteenth	4	Understanding and applying the lecture	Other methods to improve soil properties and stabilization (cement fixation, asphalt fixation, light fixation).	Lecture	Daily, quarterly, annual and practical tests
Sixteenth and the seventeenth	4	Understanding and applying the lecture	Modern methods of soil stabilization (soil reinforcement, types of materials used in it and how to use them) (Reinforced Earth)	Lecture	Daily, quarterly, annual and practical tests
Eighteenth	4	Understanding and applying the lecture	Californian endurance ratio (CBR) and its importance in the implementation of roads.	Lecture	Daily, quarterly, annual and practical tests
Nineteenth Twenty	4	Understanding and applying the lecture	Consolidation and its relationship to the occurrence of subsidence.	Lecture	Daily, quarterly, annual and practical tests
Twenty-first	4	Understanding and applying the lecture	The phenomenon of swelling and collapse.	Lecture	Daily, quarterly, annual and practical tests
Twenty-second	4	Understanding and applying the lecture	Definition of shear strength and its importance in calculating the amount of soil bearing capacity.	Lecture	Daily, quarterly, annual and practical tests
Twenty-third	4	Understanding and applying the lecture	Unconfined Compression Test .	Lecture	Daily, quarterly, annual and practical tests
Twenty-fourth	4	Understanding and applying the lecture	Shear Test (Direct)	Lecture	Daily, quarterly, annual and practical tests
Twenty-fifth and the twenty-sixth	4	Understanding and applying the lecture	Triaxial Compression Test.	Lecture	Daily, quarterly, annual and practical tests
Twenty-seventh	4	Understanding and applying the lecture	Field shear tests (In Situe Shear Test).	Lecture	Daily, quarterly, annual and practical tests
Twenty-eighth	4	Understanding and applying the lecture	Types of foundations and their relationship to the amount of soil tolerance.	Lecture	Daily, quarterly, annual and practical

					tests
Twenty-ninth	4	Understanding and applying the lecture	Shallow Foundation and Deep Foundation, such as piles.	Lecture	Daily, quarterly, annual and practical tests
Xxx	4	Understanding and applying the lecture	A simple introduction to the work of soil exploration (Soil Exploration), types of models, method of taking, preparation and depth of test pits to be implemented on site.	Lecture	Daily, quarterly, annual and practical tests

13. 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

14. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Soil mechanics book
Main references (sources)	Soil mechanics book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:
Workshop
2.Course Code:
There isn't
3.Semester / Year:
Annual
4.Description Preparation Date:
3/11/2024
5.Available Attendance Forms:
Attendance in the classroom
6.Number of Credit Hours (Total) / Number of Units (Total)
90Hours / 6 unit
7.Course administrator's name (mention all, if more than one name)
Name: Kareem fadel adod

Email: inb.krm@atu.edu.iq

8.Course Objectives

Course Objectives	Acquiring manual skills in using hand tools, measuring tools, and operating machines necessary to prepare the student As a technician in the field of building and construction.
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9.Teaching and Learning Strategies

Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,
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10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1- Carpentry Forms (3 weeks)					
The first	3	Understanding and applying the lecture	The basic principles in carpentry models Correction of the model, conditions to be met in the correction of the model,	Lecture	Practical daily tests
Second	3	Understanding and applying the lecture	Completion of training, finishing of the parts of the model and methods of assembly, its final dimensions	Lecture	Practical daily tests
Third	3	Understanding and applying the lecture	Composite models: explanation of multiple boundaries. Bucket boxes,	Lecture	Practical daily tests
2- Metal foundry (6 weeks)					
Fourth	3	Understanding and applying the lecture	Metal casting and its importance, the purpose of using c.	Lecture	Practical daily tests
V	3	Understanding and applying the lecture	Sand mold for one-piece model with identification of estuaries and elevators,	Lecture	Practical daily tests

			metal smelting		
Sixth	3	Understanding and applying the lecture	Forming a sand mold like the previous one with drilling the metal and pouring it into a mold and taking out the foundry and cleaning it, metal melting furnaces:	Lecture	Practical daily test
Seventh	3	Understanding and applying the lecture	Industrial safety equipment in casting and how to use metal casting in metal molds: Identifying the parts of metal molds, their benefits and how	Lecture	Practical daily tests
Eighth	3	Understanding and applying the lecture	Sand mold plumbing for shaky models and c	Lecture	Practical daily tests
Ninth	3	Understanding and applying the lecture	Sand mold casting in a productive way, training on the use of plumbing panels that contain more than one piece in one	Lecture	Practical daily tests
3-Refrigerators & Maintenance (6 weeks)					
X	3	Understanding and applying the lecture	Industrial development and the role of refrigerators and the r Vernier foot: types and methods of measurement, how	Lecture	Practical daily tests
Eleventh	3	Understanding and applying the lecture	Drilling and Burghala Process: Types of drills, types of prime, types of remers, how to perform piercing and bulguring operations, exercise on manual and mechanical drilling and bulgur operations after performi Shankara	Lecture	Practical daily tests
Twelfth	3	Understanding and applying the lecture	Various trainings on the work of the aforementioned refrigerators.	Lecture	Practical daily tests
Thirteenth	3	Understanding and applying the lecture	The importance of maintenance of machinery and equipment, clarification of periodi	Lecture	Practical daily tests
Fourteenth	3	Understanding and applying the lecture	Types of filling and sealants, their uses, meth of fixing, removing and reviewing their work, typ of valves and methods of work, det	Lecture	Practicaldaily tests
Fifteenth	3	Understanding and applying the lecture	Speed boxes of all kinds, gear interlocking and inspection, detection of columns, rotors,	Lecture	Practical daily test

			connections, assembled install		
4- Welding (6 weeks)					
Sixteenth	3	Understanding and applying the lecture	Occupational safety and security precautions: gas welding equipment used, how to install and knock them, the work of other.	Lecture	Practical daily test
Seventeenth	3	Understanding and applying the lecture	Practical exercises: welding opposite surfaces, orthogonal surfaces, inclined surfaces, circle welding, longitudinal	Lecture	Practical daily test
Eighteenth	3	Understanding and applying the lecture	Welding equipment, practical training on the use of electric arc in welding different surfaces, point and strip welding, equipment used of each type,	Lecture	Practical daily tests
Nineteenth	3	Understanding and applying the lecture	Welding using argon gas: Doing exercises on welding artifacts using argon gas, welding point	Lecture	Practical daily test
20th	3	Understanding and applying the lecture	Gas cutting operations, equipment used and precautions to be provided	Lecture	Practical daily tests
Twenty- first	3	Understanding and applying the lecture	Combination drills using different cutting and welding processes	Lecture	Practical daily tests
5- Plumbing and blacksmithing (3 weeks)					
Twenty-second	3	Understanding and applying the lecture	Bending sheet cutting equipment, rolling machine, cardboard machine, manual tools, the use and shrinking of sheet sheets manually,	Lecture	Practical daily tests
Twenty-third	3	Understanding and applying the lecture	Training on calculating the solitary crosswork, doing an exercise for two cross cylinders,	Lecture	Practical daily test
Twenty-fourth	3	Understanding and applying the lecture	Blacksmithing, equipment used in blacksmithing, balls	Lecture	Practical daily test
6- Lathing (6 weeks)					
Twenty-fifth	3	Understanding and applying the lecture	Lathe, specifications, uses, accessories and installation methods Lathe operation Types of lathe pens using each of them	Lecture	Practical daily tests
Twenty-sixth	3	Understanding and applying the lecture	Turning operations: flat turning, adjustment, center work, simple graduated	Lecture	Practical daily test

			exercise on the use of measuring tools		
Twenty-seventh	3	Understanding and applying the lecture	Turning the internal and external loat in different ways with an explanation of the laws for each method, the work of an	Lecture	Practical daily test
Twenty-eighth	3	Understanding and applying the lecture	The work of different teeth externally and internally (triangle, square, trapezoidal) Exercise work includes different types of teeth	Lecture	Practical daily tests
Twenty-ninth	3	Understanding and applying the lecture	Integrated turning works including previou	Lecture	Practical daily test
Xxx	3		Cutting speeds, selection and use of their tables		Practical daily tes

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)	Mechanical workshop book
Main references (sources)	Engineering welding book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:
Construction materials and asphalt
2.Course Code:
There isn't
3.Semester / Year:
Annual
4.Description Preparation Date:
3/11/2024
5.Available Attendance Forms:
Attendance in the classroom
6.Number of Credit Hours (Total) / Number of Units (Total)

150Hours / 10 unit					
7.Course administrator's name (mention all, if more than one name)					
Name: Dr. Zaid ali hasan					
Email: zaid.hasan.bib@atu.edu.iq					
8.Course Objectives					
Course Objective	Introducing the student to the properties of construction materials, especially those used in road works, and methods of producing them The correct way to use it and qualify the student to perform standard tests to determine the conformity of the material Construction specifications, as well as introducing the student to asphalt, its types, sources, properties and uses. Standard tests and general specifications.				
9.Teaching and Learning Strategies					
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner’s learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner’s learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,				
10.Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5	Understanding and applying the lecture	General description of the physical properties and standard specifications of building materials and their uses.	Lecture	Oral and written exams
II and III	5	Understanding and applying the lecture	Bricks, types, industry, uses, properties.	Lecture	Oral and written exams
Fourth	5	Understanding and applying the lecture	Concrete blocks, their industry, uses, properties.	Lecture	Oral and written exams
V	5	Understanding and applying the lecture	Binders, their types, binder materials that resist moisture.	Lecture	Oral and written exams
Sixth	5	Understanding and applying the lecture	Binders that are not resistant to moisture, plaster, its industry, uses, specifications.	Lecture	Oral and written exams
Seventh	5	Understanding and applying the lecture	Wood, its types, its uses in railway and road works.	Lecture	Oral and written exams

Eighth	5	Understanding and applying the lecture	Iron, its types, methods of manufacture.	Lecture	Oral and written exams
Ninth	5	Understanding and applying the lecture	Structural steel, its uses and specifications.	Lecture	Oral and written exams
X	5	Understanding and applying the lecture	Concrete slabs, types, specifications, use in road pavements.	Lecture	Oral and written exams
Eleventh	5	Understanding and applying the lecture	A visit to the center for construction materials.	Lecture	Oral and written exams
Twelfth	5	Understanding and applying the lecture	Concrete pipes, their industry, specifications, use in road works.	Lecture	Oral and written exams
Thirteenth	5	Understanding and applying the lecture	Paints, types, use in road planning and traffic signs.	Lecture	Oral and written exams
Fourteenth	5	Understanding and applying the lecture	Stones, their classification and types and the use of stones in the work of elevation.	Lecture	Oral and written exams
Fifteenth	5	Understanding and applying the lecture	Epoxy, its types, properties, uses and use in roads.	Lecture	Oral and written exams
Sixteenth	5	Understanding and applying the lecture	An overview of asphalt materials.	Lecture	Oral and written exams
Seventeenth	5	Understanding and applying the lecture	Qirene materials, types and uses.	Lecture	Oral and written exams
Eighteenth	5	Understanding and applying the lecture	Sources and specifications of bindings.	Lecture	Oral and written exams
Nineteenth	5	Understanding and applying the lecture	Physical properties of asphalt, cement asphalt, properties and uses.	Lecture	Oral and written exams
20th	5	Understanding and applying the lecture	Trimmed asphalt, properties, types, uses.	Lecture	Oral and written exams
Twenty-first	5	Understanding and applying the lecture	Emulsified asphalt, its types and uses.	Lecture	Oral and written exams
Twenty-second	5	Understanding and applying the lecture	Standard tests for bituminous materials.	Lecture	Oral and written exams
Twenty-third	5	Understanding and applying the lecture	Determination of the category of gear - screening examination.	Lecture	Oral and written exams
Twenty-fourth	5	Understanding and applying the lecture	Determination of the grade of gear - examination of viscosity.	Lecture	Oral and written exams
Twenty-fifth	5	Understanding and applying the lecture	Determination of the grade of gear - examination of ductility by the method of the ball and the ring.	Lecture	Oral and written exams
Twenty-sixth	5	Understanding and applying the lecture	Other tests to determine the properties of cement asphalt.	Lecture	Oral and written exams
Twenty-seventh	5	Understanding and applying the lecture	Tack coat and Prime coat, properties and uses of each coating.	Lecture	Oral and written exams
Twenty-eighth	5	Understanding and applying the lecture	Effect of heat on asphalt properties, loss test by heat effect	Lecture	Oral and written exams
Twenty-ninth	5	Understanding and applying the lecture	Tar paste (mastic) Uses and properties Standard checks	Lecture	Oral and written exams
Xxx	5	Understanding and applying the lecture	Bituminous felt, properties, uses and field tests.	Lecture	Oral and written exams

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)	Construction materials book
Main references (sources)	Asphalt components book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:	
Quantity Surveying	
2.Course Code:	
There isn't	
3.Semester / Year:	
Annual	
4.Description Preparation Date:	
3/11/2024	
5.Available Attendance Forms:	
Attendance in the classroom	
6.Number of Credit Hours (Total) / Number of Units (Total)	
90Hours / 6 unit	
7.Course administrator's name (mention all, if more than one name)	
Name: Dr.Sheren qasem abdahreda	
Email: inb.sh.qasim@atu.edu.iq	
8.Course Objectives	
Course Objectives	Enabling the student to complete quantitative surveying of road works and estimate the cost of work items, as well as completion Site inspections of the facilities and implementing workers and providing him with the necessary information from project implementation contracts And how to implement it.
9.Teaching and Learning Strategies	
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative

	Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,
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10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	3	Understanding and applying the lecture	General introduction to guessing, specifications, contracting contracts and their types	Lecture	Oral and written exams
Second	3	Understanding and applying the lecture	Definitions of guessing, arms, how to collect information, preliminary investigations before guessing, and the bases on which the guess is based	Lecture	Oral and written exams
Third	3	Understanding and applying the lecture	Types of guessing / guessing work, machinery, tools, expenses, profit and unforeseen work.	Lecture	Oral and written exams
Fourth	3	Understanding and applying the lecture	Bills of quantities and price analysis (materials + work) according to units of volumes, Surveyings, lengths, numbers and wholesale using Computer Applications (1)	Lecture	Oral and written exams
V	3	Understanding and applying the lecture	Analyzing prices, organizing bills of quantities for road	Lecture	Oral and written exams

			works and their specifications, and carrying out a site pretext for those works		
Sixth and seventh	3	Understanding and applying the lecture	How to calculate the volumes of earthworks for roads, canals and dams in different ways and identify the types of flexible and solid roads	Lecture	Oral and written exams
Eighth and ninth	3	Understanding and applying the lecture	Bills of quantities and price analysis for the works of the pipe barrages	Lecture	Oral and written exams
X	3	Understanding and applying the lecture	A site pretext for the work of the barrages and identifying their specifications	Lecture	Oral and written exams
Eleventh and twelfth	3	Understanding and applying the lecture	Bills of quantities and price analysis for box barrage works	Lecture	Oral and written exams
Thirteenth and fourteenth	3	Understanding and applying the lecture	Bills of quantities and price analysis for sewage works, identification of their engineering and technical specifications, and carrying out a site pretext for them	Lecture	Oral and written exams
Fifteenth and sixteenth	3	Understanding and applying the lecture	Identify technical, private and general specifications and identify the conditions and specifications for civil engineering contracting	Lecture	Oral and written exams
Seventeenth and eighteenth	3	Understanding and applying the lecture	How to evaluate and tender form, contract forms, instructions for contractors regarding fines, advances and bids	Lecture	Oral and written exams
nineteenth	3	Understanding and	Exercises on fines	Lecture	Oral and

and twenty		applying the lecture	and contractor advances		written exams
Twenty-first and second	3	Understanding and applying the lecture	The use of international standards with a focus on following Iraqi standards	Lecture	Oral and written exams
Third and Twenty-fourth	3	Understanding and applying the lecture	Tables of quantities and price analysis of railway works and carrying out a site pretext for these works using the Computer Applications (1) in organizing tables	Lecture	Oral and written exams
Fifth and twenty-sixth	3	Understanding and applying the lecture	Familiarization with the duties of the project manager, the schedule of work submission with following the method of network plans C.P.M and schemes were in the implementation of engineering projects	Lecture	Oral and written exams
Seventh and Twenty-eighth	3	Understanding and applying the lecture	Bills of quantities and price analysis for bridge works and carrying out concrete slabs for field works	Lecture	Oral and written exams
Twenty-ninth and thirty-ninth	3	Understanding and applying the lecture	Making a site pretext for a small road with arches and approaches using the Computer Applications (1) with the shield and drawing	Lecture	Oral and written exams

15. 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

16. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Guessing book
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Main references (sources)	Estimated quantities calculation book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:	
Highway construction	
2.Course Code:	
There isn't	
3.Semester / Year:	
Annual	
4.Description Preparation Date:	
3/11/2024	
5.Available Attendance Forms:	
Attendance in the classroom	
6.Number of Credit Hours (Total) / Number of Units (Total)	
90Hours / 6 unit	
7.Course administrator's name (mention all, if more than one name)	
Name: Huda zuhear abdalkani	
Email: inb.huda@atu.edu.iq	
8.Course Objectives	
Course Objectives	The course aims to teach the student the scientific, engineering and technical methods of work and specifications for construction Rigid and flexible roads, with a study of road problems and maintenance methods.
9.Teaching and Learning Strategies	
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,

10.Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	3	Understanding and applying the lecture	A brief history of the development of road construction in terms of raw materials and methods of road implementation	Lecture	Daily, quarterly, annual and practical tests
Second	3	Understanding and applying the lecture	Dividing the roads into flexible and rigid and comparing each of them in terms of composition, resistance and road age	Lecture	Daily, quarterly, annual and practical tests
Third, fourth and fifth	3	Understanding and applying the lecture	Flexible roads / introduction to the components of flexible roads, their characteristics, general specifications of flexible road layers, the role of asphalt as a binder, adhesive coatings, types, properties and components.	Lecture	Daily, quarterly, annual and practical tests
Sixth, seventh and eighth	3	Understanding and applying the lecture	The effect of the characteristics of the natural earth (Sub grade) in the subject of road construction and in determining the thickness of the tiling layers, and the effect of the characteristics of the layer (Sub base) (sub-foundation layer)	Lecture	Daily, quarterly, annual and practical tests
Ninth and tenth	3	Understanding and applying the lecture	The theory of weight distribution during the layers of the flexible road and the behavior of flexible tiling under the influence of weights (axial and tire weight)	Lecture	Daily, quarterly, annual and practical tests
Eleventh and twelfth	3	Understanding and applying the lecture	Classification of heavy and light vehicles that travel on the road in terms of the number of axles and how to calculate and convert traffic volumes to standard axial weights.	Lecture	Daily, quarterly, annual and practical tests
Third and fourteenth	3	Understanding and applying the lecture	Introduction to Flexible Tiling Design Methods and Implementation Method, Group Guide Method, AASHTO	Lecture	Daily, quarterly, annual and practical tests

			Method		
Fifth and sixteenth	3	Understanding and applying the lecture	Steel tiling, properties of its components, types of joints, rebar.	Lecture	Daily, quarterly, annual and practical tests
Seventh and eighteenth	3	Understanding and applying the lecture	Introduction to steel tiling design methods and execution method	Lecture	Daily, quarterly, annual and practical tests
Nineteenth and Twenty	3	Understanding and applying the lecture	Methods of draining water from the road, modern methods in the design of filters for road works, protection of roads from the influence of water influence through the layers of the road	Lecture	Daily, quarterly, annual and practical tests
Twenty-first and second	3	Understanding and applying the lecture	How to evaluate road performance, failures in flexible roads	Lecture	Daily, quarterly, annual and practical tests
Twenty-third	3	Understanding and applying the lecture	Reasons for the failure of flexible methods, the reasons for the failure of each case	Lecture	Daily, quarterly, annual and practical tests
Twenty-fourth and twenty-fifth	3	Understanding and applying the lecture	Methods of periodic maintenance of roads, road furniture and methods of implementation	Lecture	Daily, quarterly, annual and practical tests
Twenty-sixth and twenty-seventh	3	Understanding and applying the lecture	Evaluation of solid road performance, failure solutions in solid roads	Lecture	Daily, quarterly, annual and practical tests
Twenty-eighth	3	Understanding and applying the lecture	Causes of failures in solid roads	Lecture	Daily, quarterly, annual and practical tests
Twenty-ninth and thirty-ninth	3	Understanding and applying the lecture	Maintenance program for hard roads, shoulder and roadside problems and their treatment	Lecture	Daily, quarterly, annual and practical tests

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)	Road construction book world wide web
Main references (sources)	Road structural design book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Lectures

Course Description Form

1.Course Name:							
Highway Drawing							
2.Course Code:							
There isn't							
3.Semester / Year:							
Annual							
4.Description Preparation Date:							
3/11/2024							
5.Available Attendance Forms:							
Attendance in the classroom							
6.Number of Credit Hours (Total) / Number of Units (Total)							
90Hours / 6unit							
7.Course administrator's name (mention all, if more than one name)							
Name: walaa mohammed jawad Email: walaa.jawad.bib2@atu.edu.iq							
8.Course Objectives							
Course Objectiv Practice drawing road plans and their accessories, as well as knowing how to read plan							
9.Teaching and Learning Strategies							
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; background-color: #e1f5fe;">Strategy</td> <td> 1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming, </td> </tr> </table>						Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,						
10.Course Structure							
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method		
First and second	3	Understanding and applying the lecture	Introduction to the development of roads in Iraq Technical reformers used in	Lecture	Daily, quarterly and annual exams		

			drawing roads and transportation		
Third	3	Understanding and applying the lecture	Types of plans necessary for any project and their purpose, the use of aerial photography in the subject of determining the route of the road	Lecture	Daily, quarterly and annual exams
Fourth	3	Understanding and applying the lecture	Drawing a general plan for a road within the city, a road outside the city	Lecture	Daily, quarterly and annual exams
V	3	Understanding and applying the lecture	The use of computers in drawing the general plan of the road	Lecture	Daily, quarterly and annual exams
Sixth	3	Understanding and applying the lecture	Drawing horizontal curves and their equations,	Lecture	Daily, quarterly and annual exams
Seventh	3	Understanding and applying the lecture	drawing vertical curves and their equations,	Lecture	Daily, quarterly and annual exams
Eighth	3	Understanding and applying the lecture	Drawing a cross section of a dirt road	Lecture	Daily, quarterly and annual exams
Ninth	3	Understanding and applying the lecture	Drawing cross sections of flexible roads, straight part, curved part with its different layers	Lecture	Daily, quarterly and annual exams
X	3	Understanding and applying the lecture	Using a computer to draw a cross section of a flexible road with its different layers	Lecture	Daily, quarterly and annual exams
Eleventh	3	Understanding and applying the lecture	Drawing a complete outline of a road with a length of (1 km) with details	Lecture	Daily, quarterly and annual exams
Twelfth	3	Understanding and applying the lecture	Drawing a cross section of a solid road	Lecture	Daily, quarterly and annual exams
Thirteenth	3	Understanding and applying the lecture	The use of computers in drawing a solid cross section with all the structural details	Lecture	Daily, quarterly and annual exams
Fourteenth	3	Understanding and applying the lecture	Drawing a cross section of a composite road from a rigid and flexible part	Lecture	Daily, quarterly and annual exams
Fifteenth	3	Understanding and applying the lecture	The use of computers in drawing the height of the edge of the road	Lecture	Daily, quarterly and annual exams
Sixteenth	3	Understanding and applying the lecture	The use of computers in drawing parking lots	Lecture	Daily, quarterly and annual exams
Seventeenth and eighteenth	3	Understanding and applying the lecture	The use of computers in drawing the details of tube and box arches	Lecture	Daily, quarterly and annual exams
Nineteenth	3	Understanding and applying the lecture	Drawing of iron details for box arches	Lecture	Daily, quarterly and annual exams

20th	3	Understanding and applying the lecture	Drawing the curve of earth quantities	Lecture	Daily, quarterly and annual exams
Twenty-first	3	Understanding and applying the lecture	The use of computer programs in drawing and estimating dirt quantities	Lecture	Daily, quarterly and annual exams
Twenty-second	3	Understanding and applying the lecture	Drawing a cross section of the road in case of burial and cutting	Lecture	Daily, quarterly and annual exams
Twenty-third	3	Understanding and applying the lecture	Showing a scientific film and slides about the types of intersections in the road	Lecture	Daily, quarterly and annual exams
Twenty-fourth	3	Understanding and applying the lecture	Draw a T-shaped intersection with its horizontal projection	Lecture	Daily, quarterly and annual exams
Twenty-fifth	3	Understanding and applying the lecture	Drawing a circular field intersection	Lecture	Daily, quarterly and annual exams
Twenty-sixth	3	Understanding and applying the lecture	Introduction to the development of roads in Iraq Technical reformers used in drawing roads and transportation	Lecture	Daily, quarterly and annual exams
Twenty-seventh	3	Understanding and applying the lecture	Types of plans necessary for any project and their purpose, the use of aerial photography in the subject of determining the route of the road	Lecture	Daily, quarterly and annual exams
Twenty-eighth	3	Understanding and applying the lecture	Drawing a general plan for a road within the city, a road outside the city	Lecture	Daily, quarterly and annual exams
Twenty-ninth	3	Understanding and applying the lecture	The use of computers in drawing the general plan of the road	Lecture	Daily, quarterly and annual exams
Xxx	3	Understanding and applying the lecture	Drawing horizontal curves and their equations,	Lecture	Daily, quarterly and annual exams

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)	Road drawing book
Main references (sources)	Road and irrigation drawing book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:					
Highway Construction Equipment's					
2.Course Code:					
There isn't					
3.Semester / Year:					
Annual					
4.Description Preparation Date:					
3/11/2024					
5.Available Attendance Forms:					
Attendance in the classroom					
6.Number of Credit Hours (Total) / Number of Units (Total)					
90Hours / 6 unit					
7.Course administrator's name (mention all, if more than one name)					
Name: Huda zuhear abdalkani					
Email: inb.huda@atu.edu.iq					
8.Course Objectives					
Course Objectives		This course aims to teach the student about the equipment and machines for road construction and the engineering principles in work Machines and factors that affect the selection of machines, work management, organization of construction work activities.			
9.Teaching and Learning Strategies					
Strategy		1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,			
10.Course Structure					
Week	Hours	Required Learning	Unit or subject	Learning	Evaluation

		Outcomes	name	method	method
The first	3	Understanding and applying the lecture	Business planning and management	Lecture	Daily, quarterly and annual exams
II and III	3	Understanding and applying the lecture	Construction work activities, critical path method and steps to find critical path	Lecture	Daily, quarterly and annual exams
Fourth	3	Understanding and applying the lecture	Factors affecting the choice of construction machinery	Lecture	Daily, quarterly and annual exams
Fifth and sixth	3	Understanding and applying the lecture	Special and standard machines, the cost of owning and operating machines, extinction, operating cost and obsolescence cost, maintenance and repair, economic life of machines	Lecture	Daily, quarterly and annual exams
Seventh	3	Understanding and applying the lecture	Engineering foundations in the work of machines, rolling resistance and the effect of the degree of inclination of the road on the required traction voltage	Lecture	Daily, quarterly and annual exams
Eighth	3	Understanding and applying the lecture	Effect of roof slope on supply pit location, altitude effect on internal combustion engine performance, temperature effect on internal combustion engine performance	Lecture	Daily, quarterly and annual exams
Ninth and tenth	3	Understanding and applying the lecture	Soil limitation, soil stabilization, swelling and shrinkage phenomenon, determination of density and humidity by nuclear examination, soil stabilization using lime, cement and asphalt	Lecture	Daily, quarterly and annual exams
Eleventh and twelfth	3	Understanding and applying the lecture	Soil limiting machines, good handling specifications, types of handling machines	Lecture	Daily, quarterly and annual exams
Thirteenth	3	Understanding and applying the lecture	Piston and smooth wheel sharps, pulmonary tire sharps and vibration sharps.	Lecture	Daily, quarterly and annual exams
Fourteenth	3	Understanding and applying the lecture	Pressure bulb theory for load distribution, for vibrational accidents	Lecture	Daily, quarterly and annual exams
Fifteenth	3	Understanding and applying the lecture	Tractors and similar machinery	Lecture	Daily, quarterly and annual exams
Sixteenth	3	Understanding and applying the lecture	Quarry, Soil Transfer by Quarry, Land	Lecture	Daily, quarterly and annual

			Evacuation Process		exams
Seventeenth	3	Understanding and applying the lecture	Skimmers, types and sizes	Lecture	Daily, quarterly and annual exams
Eighteenth	3	Understanding and applying the lecture	Production and operating cost, improving and increasing the productivity of the skimmer	Lecture	Daily, quarterly and annual exams
Nineteenth	3	Understanding and applying the lecture	Listed, characteristics and uses.	Lecture	Daily, quarterly and annual exams
Twentieth and twenty-first	3	Understanding and applying the lecture	Excavation machines, automatic shovels, selection of type and size of motorized shovel, productivity	Lecture	Daily, quarterly and annual exams
Twenty-second	3	Understanding and applying the lecture	Hemophilia excavators, size of haemophilic excavator, types of haemophilia excavators	Lecture	Daily, quarterly and annual exams
Twenty-third	3	Understanding and applying the lecture	Trucks & Trolleys, Types of Trucks, Capacity of Trucks & Trolleys	Lecture	Daily, quarterly and annual exams
Twenty-fourth and twenty-fifth	3	Understanding and applying the lecture	Asphalt production plants, types, parts	Lecture	Daily, quarterly and annual exams
Twenty-sixth	3	Understanding and applying the lecture	Conveyor belts, economical material transport with conveyor belts, conveyor belt parts	Lecture	Daily, quarterly and annual exams
Twenty-seventh and twenty-eighth	3	Understanding and applying the lecture	Tunnels, objects from tunnels, rock scrubbing, tunnel construction with mechanical holes, tunnel ventilation	Lecture	Daily, quarterly and annual exams
Twenty-ninth and thirty-ninth	3	Understanding and applying the lecture	Asphalt brushes, speed of hinge, joint limit, specifications of asphalt mattresses, speed of mattresses, types of mattresses	Lecture	Daily, quarterly and annual exams

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)	Road construction equipment book
Main references (sources)	Construction equipment book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:	
Airports and Railway Engineering	
2.Course Code:	
There isn't	
3.Semester / Year:	
Annual	
4.Description Preparation Date:	
3/11/2024	
5.Available Attendance Forms:	
Attendance in the classroom	
6.Number of Credit Hours (Total) / Number of Units (Total)	
60 ours / 4 unit	
7.Course administrator's name (mention all, if more than one name)	
Name: Walaa mohammed jawad Email: walaa.jawad.bib2@atu.edu.iq	
8.Course Objectives	
Course Objectives	This course aims to introduce the student to the principles of airport and railway engineering and the standards and specifications of railway design And airports.
9.Teaching and Learning Strategies	
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused

on learning processes, examples of which include brainstorming,

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	2	Understanding and applying the lecture	General introduction to air transport, its development, advantages and disadvantages	Lecture	Daily, quarterly and annual exams
Second	2	Understanding and applying the lecture	Types of airports, specifications, features	Lecture	Daily, quarterly and annual exams
Third	2	Understanding and applying the lecture	Airport sections, functions of each department	Lecture	Daily, quarterly and annual exams
Fourth	2	Understanding and applying the lecture	Choosing an airport location, factors affecting it, entrance to site selection	Lecture	Daily, quarterly and annual exams
V	2	Understanding and applying the lecture	Runway orientation	Lecture	Daily, quarterly and annual exams
Sixth	2	Understanding and applying the lecture	Accommodating the airport, methods of calculating it, factors affecting it	Lecture	Daily, quarterly and annual exams
Seventh	2	Understanding and applying the lecture	Engineering design of the runway cross-section, its specifications	Lecture	Daily, quarterly and annual exams
Eighth	2	Understanding and applying the lecture	The slope of the runway slope, its specifications	Lecture	Daily, quarterly and annual exams
Ninth	2	Understanding and applying the lecture	Runway length, factors affecting it	Lecture	Daily, quarterly and annual exams
X	2	Understanding and applying the lecture	Runway design determinants and general standards of air navigation	Lecture	Daily, quarterly and annual exams
Eleventh	2	Understanding and applying the lecture	Types of aircraft, specifications and types of aircraft used in air transport	Lecture	Daily, quarterly and annual exams
Twelfth	2	Understanding and applying the lecture	Runway approaches, specifications and design criteria	Lecture	Daily, quarterly and annual exams
Thirteenth	2	Understanding and applying the lecture	Service buildings for airports and arranging the distribution of buildings.	Lecture	Daily, quarterly and annual exams
Fourteenth	2	Understanding and applying the lecture	Geotechnical realities of airport soil and water drainage of airport facilities	Lecture	Daily, quarterly and annual exams
Fifteenth	2	Understanding and applying the lecture	Airport Lighting & Private Signs	Lecture	Daily, quarterly and annual exams
Sixteenth	2	Understanding and applying the lecture	A brief history of the development of rail	Lecture	Daily, quarterly and annual

			transport		exams
Seventeen	2	Understanding and applying the lecture	Introduction to Railway Dynamics	Lecture	Daily, quarterly and annual exams
Eighteenth	2	Understanding and applying the lecture	Resistance encountered by trains, traction force of train types	Lecture	Daily, quarterly and annual exams
Nineteenth	2	Understanding and applying the lecture	Railway foundation, specifications	Lecture	Daily, quarterly and annual exams
20th	2	Understanding and applying the lecture	Railway construction methods, specifications	Lecture	Daily, quarterly and annual exams
Twenty-first	2	Understanding and applying the lecture	Means of treating the foundation of the rail	Lecture	Daily, quarterly and annual exams
Twenty-second	2	Understanding and applying the lecture	Railway stone - properties - benefits - types	Lecture	Daily, quarterly and annual exams
Twenty-third	2	Understanding and applying the lecture	Railway stone tests, stone selection methods and stone layer thickness design	Lecture	Daily, quarterly and annual exams
Twenty-fourth	2	Understanding and applying the lecture	Railway beams, benefits, types	Lecture	Daily, quarterly and annual exams
Twenty-fifth	2	Understanding and applying the lecture	Specifications of railway beams, their treatment, sections	Lecture	Daily, quarterly and annual exams
Twenty-sixth and twenty-seventh	2	Understanding and applying the lecture	Railway rails, types, features, sections, industry, checks	Lecture	Daily, quarterly and annual exams
Twenty-eighth	2	Understanding and applying the lecture	Stresses affecting the rail, their types	Lecture	Daily, quarterly and annual exams
Twenty-ninth	2	Understanding and applying the lecture	Rail line orientation, transverse slope of the rail in curves	Lecture	Daily, quarterly and annual exams
Xxx	2	Understanding and applying the lecture	Side ramp of the rail, how to implement it and transition curves	Lecture	Daily, quarterly and annual exams

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)	Railway engineering book
Main references (sources)	Airport engineering book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites

Course Description Form

1.Course Name:					
Traffic and Highway Engineering					
2.Course Code:					
There isn't					
3.Semester / Year:					
Annual					
4.Description Preparation Date:					
3/11/2024					
5.Available Attendance Forms:					
Attendance in the classroom					
6.Number of Credit Hours (Total) / Number of Units (Total)					
90Hours / 6 unit					
7.Course administrator's name (mention all, if more than one name)					
Name: Muhand jawad jasem Email: muhand.jasim@atu.edu.iq					
8.Course Objectives					
Course Objectives	Providing the student with the theoretical and practical foundations he needs to design the road, analyze its information, and provide the student with the necessary knowledge The skill necessary to collect the statistical information necessary for the design, as well as providing it with the necessary information about Details of the road and its furnishing. It also gives some information about urban transportation planning in the city.				
9.Teaching and Learning Strategies					
Strategy	1. Competitive Learning - 2. Individual learning - 3. Learning Cooperative Education strategies 4. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. 5. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. 6. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming,				
10.Course Structure					
Week	Hours	Required Learning	Unit or subject	Learning	Evaluation

		Outcomes	name	method	method
The first	3	Understanding and applying the lecture	General introduction to roads, history of roads, types, introduction to traffic engineering, definition, vehicles.	Lecture	Daily, quarterly, annual and practical tests
Second	3	Understanding and applying the lecture	Engineering characteristics of road users (drivers and pedestrians) and their impact on road design	Lecture	Daily, quarterly, annual and practical tests
Third	3	Understanding and applying the lecture	Engineering characteristics of vehicles and their impact on road design	Lecture	Daily, quarterly, annual and practical tests
Fourth	3	Understanding and applying the lecture	Road geometric characteristics and specifications	Lecture	Daily, quarterly, annual and practical tests
Fifth and sixth	3	Understanding and applying the lecture	Traffic surveys, their types, how to measure traffic speed, traffic volume, types, how to display their information	Lecture	Daily, quarterly, annual and practical tests
Seventh and eighth	3	Understanding and applying the lecture	Characteristics of traffic flow, traffic density, traffic volume, traffic speed, relationship between them, road absorption, service level	Lecture	Daily, quarterly, annual and practical tests
Ninth	3	Understanding and applying the lecture	Choosing the route of the road, the factors affecting it, the cadastral works related to it	Lecture	Daily, quarterly, annual and practical tests
X	3	Understanding and applying the lecture	Elements of the engineering design of the road and the factors affecting it	Lecture	Daily, quarterly, annual and practical tests
Eleventh and twelfth	3	Understanding and applying the lecture	Horizontal planning of the road, circular horizontal curves, types, elements, calculations, implementation	Lecture	Daily, quarterly, annual and practical tests
Fifteenth and sixteenth	3	Understanding and applying the lecture	Vertical planning of the road - convex and concave vertical curves - their types - laws - calculations	Lecture	Daily, quarterly, annual and practical tests
Seventeenth	3	Understanding and applying the lecture	The safe viewing distance to stand on a flat and steep road and its relationship to the length of the vertical curve	Lecture	Daily, quarterly, annual and practical tests
Eighteenth	3	Understanding and applying the lecture	The safe vision distance of traversal and its	Lecture	Daily, quarterly,

			relationship to the length of the vertical curve		annual and practical tests
Nineteenth	3	Understanding and applying the lecture	Surface intersections, types, characteristics	Lecture	Daily, quarterly, annual and practical tests
20th	3	Understanding and applying the lecture	Bridged intersections (isolated), types, characteristics	Lecture	Daily, quarterly, annual and practical tests
Twenty-first and twenty-second	3	Understanding and applying the lecture	Traffic accidents, types, causes, methods of recording accidents, analyzing them, identifying dangerous Surveyings, comparing them	Lecture	Daily, quarterly, annual and practical tests
Twenty-third and twenty-fourth	3	Understanding and applying the lecture	Parking lots, types, characteristics, designs, factors affecting the choice of parking	Lecture	Daily, quarterly, annual and practical tests
Twenty-fifth	3	Understanding and applying the lecture	Traffic islands, types, features, designs	Lecture	Daily, quarterly, annual and practical tests
Twenty-sixth	3	Understanding and applying the lecture	Means of organizing traffic - traffic relations - types	Lecture	Daily, quarterly, annual and practical tests
Twenty-seventh and twenty-eighth	3	Understanding and applying the lecture	Introduction to urban transport planning in cities, its importance, methods of collecting its information, models, how to analyze the information and the results obtained in it	Lecture	Daily, quarterly, annual and practical tests
Twenty-ninth and thirty-ninth	3	Understanding and applying the lecture	City Transportation Systems Planning Department	Lecture	Daily, quarterly, annual and practical tests

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)	Traffic engineering book
Main references (sources)	Road engineering book
Recommended books and references (scientific journals, reports...)	Lectures
Electronic References, Websites	Internet sites