

**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

Department of Civil Technologies

2024

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

College/Institute: Technical Institute/Najaf

Scientific Department: Department of Civil Technologies

Name of the academic or professional program: Soil Mechanics, Concrete Materials

Name of final certificate: Technical diploma

Academic system: annual

Description preparation date: 19-3-2024

Date of filling the file: 26-3-2024

Signature:

Head of Department Name:.

Nabil Katfan Lotti

Signature:

Scientific Associate Name:

Dr. Salah Mahdi Al-Adly

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Dr. Muhammad Najeh Nehme

Date:

Signature:

Approval of the Dean

Abrof. Dr. Haider Hassan Abdel Hussein

1. Program Vision

Distinction and modernity in qualifying technical cadres in the field of civil technologies scientifically and practically to meet the needs of the labor market.

2. Program Mission

Preparing scientifically and practically qualified human cadres in the field of civil engineering techniques capable of competing in the labor market in accordance with approved international quality standards and development in the field of construction and urbanization.

3. Program Objectives

- 1- Working to develop technical work through developing curricula, modernizing laboratories in accordance with internationally approved good laboratory standards, and involving department members in specialized qualification courses.
- 2- Contributing to community service by holding courses and workshops in various civil engineering applications and promoting construction and construction activities at a high level of quality.
- 3- Exchanging theoretical and practical technical expertise with technical institutes and colleges with corresponding specializations and the labor market in the private sector.
- 4- Providing a stimulating environment for learning and training.
- 5- Providing engineering and technical consultations to all departments and institutions of the state and the private sector.

4. Program Accreditation

ABET accredited certification program

5. Other external influences

Private and government sector work projects

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	2			
College Requirements	4			
Department Requirements	16			
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
The first stage	—	Concrete materials	theoretical	practical
The second stage	—	Soil mechanics	theoretical	practical

8. Expected learning outcomes of the program

Knowledge

Learning Outcomes

- 1- Acquiring theoretical and practical knowledge in various scientific curricula in civil engineering specializations.
- 2- Reading various plans, drawings and designs in engineering specializations.
- 3- Conducting theoretical calculations for various issues in the field of specialization.
- 4- Conduct on-site soil investigation.

Learning Outcomes

Statement 1

Skills

Learning Outcomes 1-Field and laboratory tests of soil. 2- Classification of soils based on their external appearance. 3-Physical soil calculations		Learning Outcomes Statement 2
Learning Outcomes 3		Learning Outcomes Statement 3
Ethics		
Learning Outcomes 4	Learning Outcomes Statement 4	
Learning Outcomes 5	Learning Outcomes Statement 5	

9. Teaching and Learning Strategies

Lecture – laboratory – educational trips – summer methodological training – student projects.

10. Evaluation methods

1- Oral exams 2- Written exams 3- Semester exams 4- Final exams 5- Daily evaluation.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Hussein Ali Muhammad	Civil Engineering	Civil Engineering			✓	
Munqidh Sadiq Muhammad	Soil and foundation engineering	Soil and foundation engineering			✓	
Marwa Hamid Abdullah	Civil Engineering	Civil Engineering			✓	
Marwa Fouad Manhar	roads and	roads and			✓	

	bridges	bridges				
Zainab Ahmed Abdel	Water resources	Water resources			✓	
Raghad Mahdi Muslim	Urban planning	Sustainable city planning				a contract
Rusul Hussein Ali	Civil Engineering	Geotechnics			✓	
Doaa Muhammad Abd Zaid	English	English			✓	

Professional Development

Mentoring new faculty members

Directing is done through direct meetings and meetings with the department head or direct manager

Professional development of faculty members

Academic and professional development for faculty members takes place through courses and workshops held inside and outside the department, conferences, and scientific research.

12. Acceptance Criterion

The central admission system is set by the Ministry and is subject to the institute's differentiation according to the secondary, vocational and preparatory school rates.

13. The most important sources of information about the program

1- Scientific curricula determined by the specialized sectoral committees of the Technical Education Authority.

2- Amendments proposed by subject teachers at a rate not exceeding 20% of the prescribed curriculum and according to the requirements of the labor market and the accredited scientific development taking place in the world currently.

3- ABET Academic Accreditation Program.

14. Program Development Plan

1- Working to develop technical education through developing curricula, modernizing laboratories in accordance with internationally approved good laboratory standards, and engaging the department's members in specialized qualifying courses.

2- Contributing to community service by holding courses and workshops in various civil engineering applications and advancing the construction and reconstruction movement at a high level of quality. 3- Exchanging theoretical and practical technical expertise with technical institutes and colleges with corresponding specialization and the labor market in the private sector.

4- Providing an appropriate stimulating environment for learning and training.

5- Providing engineering and technical consultations to all state departments and institutions and the private sector.

The department aims to graduate technical personnel qualified to carry out implementation work related to the fields of civil engineering, such as drawing and implementing plans, monitoring road projects and construction projects, conducting laboratory and field tests, surveying, and calculating quantities and dimensions of civil works projects.

Program Skills Outline															
				Required program Learning outcomes											
Year/ Level	Course Code	Course Name	Basic or optiona l	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
The first stage	Construc tion materials	Basic		✓	✓			✓		✓		✓	✓	✓	✓
	Engineer ing mechani cs	Basic		✓		✓		✓	✓		✓	✓	✓	✓	✓
	Space (1)	Basic			✓		✓	✓		✓	✓	✓		✓	
	Concrete materials	Basic		✓		✓		✓	✓		✓		✓	✓	✓
	mathema tics	Basic		✓			✓	✓		✓		✓			
	Calculat or Apps (1)	help			✓	✓		✓		✓	✓		✓	✓	✓
	Engineer ing drawing	Basic		✓	✓			✓	✓		✓	✓	✓	✓	
	Factories	help		✓			✓	✓	✓	✓	✓	✓	✓		✓

	Human rights and democracy	General			✓	✓		✓				✓		✓
	Technical English	help			✓			✓	✓				✓	✓
The second stage	Concrete technology	Basic			✓	✓	✓		✓	✓		✓	✓	✓
	Construction techniques	Basic		✓		✓	✓	✓	✓		✓	✓		✓
	Soil mechanics	Basic		✓	✓					✓		✓	✓	✓
	Civil drawing	Basic		✓			✓	✓		✓		✓		✓
	Area (2)	Basic		✓	✓		✓	✓	✓		✓	✓	✓	✓
	Construction machines	Basic		✓		✓		✓		✓	✓		✓	✓
	Calculator or Apps (2)	Basic				✓	✓	✓	✓	✓		✓		✓
	Quantity surveying	Basic		✓			✓	✓			✓		✓	✓

- Please tick the corresponding to the program learning under evaluation.

Buildings and factory construction	Basic		✓	✓			✓	✓		✓				✓
The project	Basic		✓			✓	✓		✓		✓	✓	✓	
English	help		✓			✓			✓			✓		✓
Baath Party crimes	help				✓	✓		✓			✓			

boxes individual outcomes

Notes	Material type	number of units	The number of hours			Subject	T
			M	A	n		
	Specialized	٨	٤	٢	٢	Construction materials	1
Taught in English	Specialized	٦	٣	١	٢	Engineering mechanics	٢
	Specialized	٨	٤	٢	٢	Space (١)	٣
	Specialized	٦	٣	٢	١	Concrete materials	٤
Taught in English	Specialized	٦	٣	-	٣	mathematics	٥
	help	٦	٣	٢	١	Calculator Apps (١)	٦
	Specialized	١٢	٦	٦	-	Engineering drawing	٧
	help	٦	٣	٣	-	Factories	٨
	General	٤	٢	-	٢	Human rights and democracy	٩
	help	٢	١	-	١	Technical English	١٠

		٦٤	٣٢	١٨	١٤	the total	

First academic year

(Study plan suggested)

Course Description Form(1)

Course Name .١
Concrete materials - The first stage
Course Code .٢
-
Semester/year .٣
annual
Date this description was prepared .٤
٢٠٢٤_٢٠١٩
Available attendance forms .٥
Theoretical – practical
Number of study hours (total)/number of units (total) .٦
weekly / ٦ ٣
Name of the course administrator (if more than one name is mentioned) .٧
:,Name: Raghad Mahdi Muslim email : raghad.muslim@atu.edu.com
objectives Course .٨

Objectives of the study subject	
<ul style="list-style-type: none"> • Producing the student to the materials that make up concrete and mastering the physical, mechanical and chemical properties of these materials and their effect on concrete. The practical part includes the necessary tests for these materials • Producing the student to the importance of concrete and the materials it consists of, such as cement, aggregates, and additives • How to strengthen compressive strength using available devices • Conducting important laboratory tests for concrete 	
Teaching and learning strategies	
<ul style="list-style-type: none"> • Take the forms from the site and examine them in the laboratories • Conducting theoretical and practical calculations for various issues in the field of expertise • .Conduct on-site investigation of concrete- 	the strategy

Course structure					
Study plan (suggested)					
First academic year					
valuation method	learning method	Name of the unit or topic	Required learning outcomes	hours	the week
+ral exams ditorial	ecture + practical examples +	General principles about concrete its definition,) composition, terminology,	Gen eral principles of concrete		he first nd the

	laboratory	.(and properties			second
		Portland cement, its manufacture, chemical composition, .and types	Port land cement		he third nd the fourth nd the fifth
		Other types of cement (natural ,cementexpanding cement aluminum , cement) and specifications of each .type	Typ es of cement		I
		Cement properties: smoothness, weight loss by combustion, cement stability, heat of .hydration	Ce ment properties		eventh nd the eighth
		Completion of cement properties: initial and final setting time, compressive .strength, tensile strength	Co mplementing the properties of cement		inth nd the tenth
		Aggregates: classification of	Agg regate		leventh

		aggregates, methods for taking models, shape of particles, surface texture of particles, durability of .aggregates			
		Mechanical properties of aggregate: specific gravity, unit) weight of compacted and unconsolidated, gradation, porosity, ability to absorb, corrosion - abrasion, sand .(swelling	regate	Agg	o welveth nd the thirteenth h nd the fourteenth th nd the fifteenth nd the sixteenth
		The proportion of salts, organic materials and clay materials in the aggregate, especially sand, interaction with .alkaline materials	regate	Agg	eventeenth th nd the eighteenth th
		Light and		Agg	

		heavy aggregate: Types of lightweight agg. Natural) and artificial), advantages and disadvantages of light aggregate compared to .ordinary aggregate	regate		ineteent h nd the twenty
		Specificatio ns of light aggregate used in structural concrete, specifications of light aggregate used in insulating concrete, and specifications of light aggregate used in the production of concrete .blocks	regate	Agg	\st wenty- second
		Uses of ,silicasilica fume, and fly ash in concrete production in terms of .specifications and effects	regate	Agg	wenty third
		Water used in concrete production: mixing water, curing water, and specifications .of each type	er used in concrete production	Wat	wenty fourth
		Fibers used in concrete (types,<br).(specifications<="" b=""/>	rs used in concrete	Fibe	oth

		Admixtures for concrete : types and reasons for using each type (mixing water reducing admixtures, delay admixtures, accelerating admixtures, operational improvement admixtures, refining admixtures, anti-freeze .admixtures	Additives for concrete		wenty-sixth he twenty-seventh
		Chemical composition of the additives, homogeneity of the substance, checking the specific gravity of the additives, examining the remaining residues by drying for liquid additives, examining the remaining residues by drying for solid additives, and the specifications for .that	Chemical composition of additives		wenty-eighth he twenty-ninth
		Physical requirements for concrete admixtures according to standard specifications the permissible amount)	Physical requirements for concrete admixtures		thirty

		to delay the setting time for delaying materials and the permissible time for acceleration for accelerating materials :(..			
		Course evaluation .١١		Course Name .١٣	
Distribution of the stage out of ١٠٠ according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports etc.		Course Code .١٤			
		Learning and teaching resources .١٢			
Website of the Technical Institute -		Required textbooks/methodology (if any)			
Annual					
Book of Laboratory -١		Date this document was prepared ١٦			
Tests for Concrete Technology (Haqqi Ismail Mohsen, Suad Abbas Al-Zubaidi)		Available attendance forms .١٧			
Concrete Theoretical – practical (Muayad Nouri Al-Khalaf)		Number of study hours (total)/number of units (total) .١٨			
Lectures given by -٣		weekly / ٨٤			
Related sources and Name of the course administrator (if more than one name is mentioned) .١٩		bo : Yamil Al Munqidh Sadig Muhammad :Namedr.mohammed.isa@atu.edu.iq			
.Internet		objectives Course .٢٠			
Book of Laboratory Tests for Objectives of the study subject		Recommended supporting			
Concrete Technology (Haqqi Ismail Mohsen, Suad Abbas Al-Zubaidi)		books and references (scientific journals, reports)			
producing the student to construction materials and mastering the physical, chemical and chemical properties of these materials and their effect on concrete. The practical part includes the necessary tests for these materials		Electronic references, Internet sites			
Internet sites . How to strengthen compressive strength using available devices		.Conduct important laboratory tests for these materials			

Teaching and learning strategies. ٢١	
Qualifying the student to carry out standard tests to determine the extent to which construction materials conform to specifications and determine the possibility of using them in construction, which ensures .strength, safety and economy	The strategy

Course structure. ٢٢					
Study plan (suggested)					
First academic year					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Oral +exams Editorial	Lecture + practical examples + laboratory	A general description of the physical properties and standard specifications of building materials and their uses in .buildings	Knowledge of physical properties Standard for building materials and their uses	٤	the first
=	=	Clay bricks and methods of .making them	Block industry	٤	the second
=	=	Properties, uses and .specifications of clay bricks	Clay bricks	٤	the third
=	=	.Tests for clay bricks	Knowledge of tests .for clay bricks	٤	the fourth
=	=	Limestone bricks, glass bricks, properties and manufacturing .methods	Properties and manufacture of limestone bricks and glass bricks	٤	Fifth
=	=	Concrete blocks - concrete blocks properties and manufacturing)	Properties and making Concrete	٤	VI

		method, explaining the difference (between the two	blocks - concrete blocks		
=	=	Thermostone, its properties, and .methods of manufacturing	Properties and making Thermostone	₹	Seventh
=	=	Discussing the visit to the brick .factory	Brick factory work	₹	The price
=	=	Building stone - its classification .and types	Classification and types Building stone	₹	Ninth
=	=	Uses of building stone according .to its types	Uses of building stone	₹	The tenth
=	=	Bonding materials and their .types	Types of bonding materials	₹	atheistic ten
=	=	Materials that resist moisture cement mortar, cement mortar -) Noora), Noora, how to make it, its properties	Materials that resist moisture	₹	twelvet h
=	=	Bonding materials that are not resistant to moisture (plaster), .properties and manufacture	Bonding materials that do not resist moisture	₹	Thirtee nth
=	=	Gypsum products - their types and properties, secondary ceiling .materials and their types	They are for gypsum products And properties Secondary roofing materials and their types	₹	fourtee nth
=	=	Application materials, tiles, tiles .and their types	Application materials, tiles, tiles	₹	Fifteent h

			and their types		
=	=	Manufacturing methods - .application method - joints	Manufacturing methods - application method .joints -	€	sixteen
=	=	Moisture-preventing materials, .their types and reasons for use	Moisture- preventing materials, their types and reasons .for use	€	seventee nth
=	=	Materials that prevent high humidity, their types, .manufacturing methods and uses	Materials that prevent high humidity, their types, manufacturing .methods and uses	€	eighteen
=	=	Semi-flexible and flexible moisture-repellent materials, their types, uses, manufacturing methods, and liquid moisture- .repellent materials	Semi-flexible and flexible moisture- repellent materials, their types, uses, manufacturing methods, and liquid moisture-repellent .materials	€	nineteen nth
=	=	Epoxy, its definition, properties, types, and uses	Epoxy, its definition, properties, types, and uses	€	The twentiet h
=	=	Wood - its origin, types used and	Wood - its origin,	€	Twenty first-

		.methods of using it	types used and .methods of using it		
=	=	Wood drying methods and wood .defects	Wood drying methods and wood .defects	€	twenty tow
=	=	-Metals (ferrous and non ferrous materials) and their .uses in buildings	Metals (ferrous and non-ferrous materials) and their .uses in buildings	€	twenty third
=	=	Iron, methods of making it, its .types and uses	Iron , methods of making it, its types .and uses	€	twenty fourth
=	=	.Thermal insulation materials	Thermal insulation .materials	€	٢٥th
=	=	.Dyes	.Dyes	€	٢٧th
=	=	. the glass	. the glass	€	Twenty - eighth
=	=	Asphalt, properties of asphalt .materials	Asphalt, properties of asphalt .materials	€	XXIX
=	=	in Types of asphalt and its uses .construction works	Types of asphalt and its uses in .construction works	€	thirty
Course evaluation .٢٢					
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily					

**Course
Form**

.preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources.٧٤	
Website of the Technical Institute - Najaf	Required textbooks (methodology, if any)
<p style="text-align: center;">Building Construction Book / ١٩٨٦ / -١ University of Baghdad Written by: Ertin Levon and Zuhair Sako</p> <p style="text-align: center;">Building Construction and Factory -٢ Construction ١٩٩١/Technical Education Authority - Prepared by: Adnan Al-Dahan and Sarmad Fakhri Al-Nuaimi</p>	Main references (sources)
<p style="text-align: center;">Book project (Construction Materials), written by: Jalal Sarsam / Technical .Education Authority</p>	Recommended supporting books and references (scientific journals, reports....)
Internet sites	Electronic references, Internet sites

**Description
(3)**

Course Name. ٢٥	
Engineering Mechanics - First Stage	
Course Code. ٢٦	
-	
Semester/year. ٢٧	
annual	
Date this description was prepared. ٢٨	
٢٠٢٤ / ٢ / ١٩	
Available attendance forms. ٢٩	
theoretical	
Number of study hours (total)/number of units (total). ٣٠	
weekly / ٦ ٣	
Name of the course administrator (if more than one name is mentioned). ٣١	
: email The / Marwa Hamid Abdullah :Namemarwah934@atu.edu.iq	
objectives Course. ٣٢	
Objectives of the study subject	
General objective of the course: To teach the student to analyze the forces and loads exerted on bodies and extract the stresses and strains resulting from these forces and their relationship to the materials that make up these bodies	
Teaching and learning strategies. ٣٣	
Analyzing structures and finding the forces and stresses in their parts as a result of external loads and their relationship to the dimensions of the various parts in engineering facilities so that they can withstand the stresses placed on them safely and economically	The strategy
Course structure. ٣٤	
Study plan (suggested)	
First academic year	

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Oral +exams Editorial	Lecture + practical examples + laboratory	Definition of mechanics, general review of physics topics related to the subject, trigonometric ratios of angles, vector and non-vector .quantities	A general review of physics topics related to the topic	٣	the first
=	=	Analysis and synthesis of forces, the law of the force triangle and . the force polygon	How to analyze and synthesize forces	٦	the second And the third
=	=	.Power torque	.Glory be to God	٣	the fourth
=	=	.Doubles	.Doubles	٣	Fifth
=	=	The resultant of convergent, non-.convergent, and parallel forces	Knowing the resultant of different forces	٦	VI And the seventh
=	=	.spread weights A	Scooping over the .spread weights	٣	VIII
=	=	free Equilibrium, drawing a body diagram, equilibrium equations, equilibrium in the case of convergent, non-convergent, .and parallel forces	Balance, and drawing force diagrams	٦	Ninth And the tenth
=	=	Types of tributaries, types of .sand, balance in tributaries	Feeding on the types of tributaries, types of supports, and balance in the .tributaries	٣	eleventh

=	=	Gables, analysis of gables using joints and sections	How to analyze gables using joints and sections	१	twelveth The thirteenth
=	=	Friction, nature of friction, theory of friction, laws of friction, general ,types of friction .application	Theory of friction, laws of friction, types of friction, general . applications	१	fourteenth h And the fifteenth
=	=	Centers of gravity of simple and complex geometric shapes and .their applications	Centers of gravity of simple and complex geometric shapes and their .applications	१	Sixteenth and seventeenth
=	=	Moment of inertia of simple and complex geometric shapes and .their applications	Knowledge of the moment of inertia of simple and complex geometric shapes and their .applications	१	eighteen And the nineteenth
=	=	Introduction to the resistance of materials, definition of stresses .and their types, safety factor	Resistance of materials and types of stresses	३	The twentieth
=	=	.Applications to stress	Applications to .stress	३	२१st
=	=	Strain, Hooke's law, the .relationship of strain to stress	Strain, Hooke's law, the	३	twenty tow

			relationship of .strain to stress		
=	=	Poisson's ratio, ,Lateral strain .applications to strain and stress	Lateral strain, , Poisseau ratio applications to .strain and stress	३	twenty third
=	=	Shear and bending moment diagrams for bridges, how to shear and compose with .bending moment changes	Shear and bending moment diagrams for bridges, how to form equations for changing shear and .bending moments	३	twenty fourth
=	=	Applications to drawing shear and bending moment equations for bridges	Applications to drawing shear and bending moment equations for bridges	३	२० th
=	=	Bending stress of bridges and .their applications	Bending stress of bridges and their .applications	१	twenty- sixth The twenty- seventh
=	=	Shear stress of bridges and their .applications	Shear stress of bridges and their .applications	३	Twenty- eighth
=	=	Bridges made of two different .materials and their applications	Identify bridges made of two different materials and their	१	XXIX And the thirty

			.applications		
Course evaluation. ٣٥					
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc					
Learning and teaching resources. ٣٦					
Website of the Technical Institute - Najaf			Required textbooks (methodology, if any)		
Source: Civil Engineering and Engineering Mechanics, Part One / Prof. Mazen Taha, M. Muhammad Amin, M.M. Maher Omar			Main references (sources)		
			Recommended supporting books and references (scientific journals, reports....)		
Internet sites			Electronic references, Internet sites		

Course Description Form(4)

	Course Name. ٣٧
The first stage - Space (١)	
	Course Code. ٣٨
-	

Semester/year. ٣٩	
annual	
Date this description was prepared. ٤٠	
٢٠٢٤ ٢ ١٩	
Available attendance forms. ٤١	
Theoretical - practical	
Number of study hours (total)/number of units (total). ٤٢	
weekly / ٨ ٤	
Name of the course administrator (if more than one name is mentioned). ٤٣	
:address email The dr.mohammed.isa@atu.edu.iq	Munqidh Sadiq Mohammed :Na
objectives Course. ٤٤	
Objectives of the study subject	
General objective of the course: To teach the student the basics of surveying, its use for civil engineering purposes, and conducting calculations related to it	
Teaching and learning strategies. ٤٥	
Qualifying the student to use various surveying equipment for civil engineering work and implementing maps for projects and enabling him to .plan, supervise and implement these projects	The strategy
Course evaluation. ٤٦	
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc	

Learning and teaching resources .٤٧	
Website of the Technical Institute - Najaf	Required textbooks (methodology, if any)
Construction Surveying book -١ written by: William Irvin Engineering Survey, Ministry of -٢ Higher Education and Scientific Research, Basra University, Basra College of Engineering	Main references (sources)
	Recommended supporting books and references (scientific journals, reports....)
Internet sites	Electronic references, Internet sites

Course Description Form(5)

	Course Name .٤٨
Mathematics - first stage	
	Course Code .٤٩
-	
	Semester/year .٥٠
annual	
	Date this description was prepared .٥١
٢٠٢٤ ٢ ١٩	
	Available attendance forms .٥٢
theoretical	

Number of study hours (total)/number of units (total).^{٥٣}	
weekly / ٦٣	
Name of the course administrator (if more than one name is mentioned).^{٥٤}	
Name: Rusul Hussein Ali / Amil: rusul.hussein.inj@atu.edu.iq	
objectives Course.^{٥٥}	
Objectives of the study subject	
Developing the student's ability to use mathematics in practical applications and benefit .from it in other engineering lessons	
Teaching and learning strategies.^{٥٦}	
The student learned the different ways of representing equations, mathematical laws, and various data by forming curves in a graph and using different types of diagrams that suit the purpose of .drawing them	The strategy

Course structure.^{٥٧}						
Study plan (suggested)						
First academic year						
Evaluati on method	Learnin g method	a unit or topic	Name of	Required learning outcomes	hou rs	the week
Oral +exams Editoria l	Lecture + practical example s + laborato	Matrices, determinants, and their .properties		Matrices	٣	the first

	ry				
=	=	Solving linear equations, Cramer's method, applications to determinants, solving force .analysis equations	Solve linear equations	۳	the second
=	=	Vectors, vector analysis, vector and scalar quantities, vector algebra, arithmetic operations for .vectors in space	.Vector analysis	۳	the third
=	=	Unit of orthogonal vectors, vector scale, scalar and cross multiplication, applications of vectors, calculation of torque .applications, work	Orthogonal vector unit	۳	the fourth
=	=	Function, trigonometric functions and trigonometric relationships, . logarith function	Trigonometric functions	۶	Fifth
=	=	Exponential function, hyperbolic .functions, their applications	Exponential function	۳	VI
=	=	Objectives, the objective of algebraic and trigonometric functions, applications to the .objective	The purpose of functions	۳	Seventh
=	=	.Sequences	.Sequences	۳	VIII
=	=	Differentiation, derivative, derivative of algebraic functions, .chain rule	differentiation	۳	Ninth
=	=	Curvilinear functions, standard derivative function of higher	Curvilinear functions	۶	The tenth

		.order			
=	=	Derivative of trigonometric functions, derivative of .logarithmic functions	Derivative of trigonometric functions	۳	eleventh
=	=	Derivative of exponential function, derivative of hyperbolic .functions	Derivative of The the exponential function	۳	twelveth
=	=	Applications of the derivative, the tangent and perpendicular equation, speed, acceleration, and .magnification	Derivative applications	۳	Thirteenth
=	=	.Exponents and logarithms	Exponents and .logarithms	۳	fourteenth
=	=	General physical and engineering .applications, drawing functions	General physical and engineering applications, drawing .functions	۳	Fifteenth
=	=	Integration, indefinite integration, integration of algebraic and logarithmic .functions	integration	۳	sixteen
=	=	Integration of exponential and .trigonometric functions	Integration of exponential and trigonometric .functions	۳	seventeenth
=	=	Definite integration, applications of definite integration, area under the curve, area between	Definite integral	۳	eighteen

		.two curves			
=	=	.Rotational volumes, arc length	Rotational volumes	۳	nineteenth
=	=	physics and Application of engineering (work, torque, .(momentum, moment of inertia	Physical and engineering applications	۳	Ten and n
=	=	General methods of integration, including substitution and .division	General methods of integration	۶	Twenty-first and twenty - second
=	=	exponential, and ,Use partial .logarithmic fractions	Use partial, exponential, and logarithmic .fractions	۳	twenty third
=	=	Numerical methods in integration, the trapezoid rule, the rule (calculating the volume of soil quantities and the area of .(longitudinal sections	Numerical methods in integration, the trapezoid rule, the rule (calculating the volume of soil quantities and the area of longitudinal .(sections	۳	twenty fourth
=	=	Solving discrete, homogeneous, and linear differential equations with their various applications .within the field of specialization	Solving discrete, homogeneous, and linear differential equations with their various	۳	۲۰th

			applications within the field of .specialization		
=	=	Finding the highest or lowest .point of a vertical curve	Finding the highest or lowest point of a vertical .curve	۳	twenty-sixth
=	=	Complex numbers, addition, subtraction, multiplication, .division	Complex numbers, addition, subtraction, multiplication, .division	۳	۲۷th
=	=	the Polar formula, converting polar formula to algebraic and vice versa, powers and roots, .representing roots graphically	Converting the polar formula to algebraic and vice versa	۳	Twenty-eighth
=	=	Statistical operations, frequency distributions, histogram, frequency curve, arithmetic mean, range, standard deviation, .variance and proportion	Statistical operations	۳	Twenty-nine thirtieth
Course evaluation .^{۵۸}					
Distribution of the grade out of ۱۰۰ according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc					
Learning and teaching resources .^{۵۹}					
Website of the Technical Institute - Najaf			Required textbooks (methodology, if any)		
			Main references (sources)		

The methodological book and the booklet on methodological issues	Recommended supporting books and references (scientific journals, reports....)
Internet sites	Electronic references, Internet sites

Course Description Form(6)

Course Name .٦٠
Calculator applications (١) - first stage
Course Code .٦١
-
Semester/year .٦٢
annual
Date this description was prepared .٦٣
٢٠٢٤ ٢ ١٩
Available attendance forms .٦٤
Theoretical - practical
Number of study hours (total)/number of units (total) .٦٥
weekly / ٦٣
Name of the course administrator (if more than one name is mentioned) .٦٦
Name: :Marwa Hamid / Emailmarwah934@atu.edu.iq
objectives Course .٦٧
Objectives of the study subject
Introducing the student to the calculator with an idea about its prospects and use in various fields and the principles of programming and providing him with skill in using the calculator to

.implement programs previously prepared for application in his field of specialization					
Teaching and learning strategies .٦٨					
Windows operating system , theAuto Cad drawing program , theMicros Word printing program , andExcel .					The strategy
Course structure .٦٩					
Study plan (suggested)					
First academic year					
Evaluatio n method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Oral +exams Editorial	Lecture + practical examples	Windows operating system : The concept of the Windows system, its advantages and basic requirements, operating the system, components of the maindesktop screen , the concept of theicon how to , deal with mouse activities, the importance and components of the TaskBar making use of , Start to enter programs, exiting the system and turning) .off the calculatorShut Down .(	Windows operating system	٣	the first

=	=	The concept of the window for any program and identifying its main components, dealing) :with desktop icons such as My Documents ; My Computer; Recycle Bin .(Desktop main screen , the concept of theicon how to , deal with mouse activities, the importance and components of the TaskBar using ,Start to enter programs, exit the system and turn off the) calculatorShut Down .(	Window concept for any program	۳	the second
=	=	) Getting to knowMy Computer in terms of disks, (folders and files, how to deal with formatting floppy disks and copying folders and files, taking advantage of cutting and pasting and knowing the properties of disks, folders and files, dealing with the trash and how to delete and retrieve files through what the trash .can provides in this aspect	) IdentifyMy Computer in (,terms of disks	۳	the third
=	=	Autocad program , getting to know the program, where its name comes from, the	Autocad program	۳	the fourth

		importance of the program and the contents of the program window, and how to .create a new file and store it			
=	=	How to select most AutoCAD commands	How to select most AutoCAD commands	۳	Fifth
=	=	Toolbars in AutoCAD, how to hide and show them, and customize a special interface for the program	Toolbars in AutoCAD	۳	VI
=	=	) Status barGrid, Ortho, Snap, ..., etc. (	) Status barGrid, Ortho, Snap, ..., etc. (	۶	Seventh and eighth
=	=	Auxiliary commands and) panel limitsLimits, Units, Zoom (	Auxiliary commands and) panel limitsLimits, Units, Zoom (	۶	The ninth and tenth
=	=	Basic drawing commands Draw menu	Basic drawing commands Draw menu	۱۲	Eleventh - fifteenth
=	=	Modify menu commands	Modify menu commands	۱۵	xvi-xx
=	=	Text commands with Dimension commands	Text commands withDimension commands	۶	xxii-xxii
=	=	Microsoft Word printing program, how to run it and	Microsoft Word printing	۱۲	Twenty-third -

		write with it, how to store it, change font types, modify the paper in terms of margins or flip the paper, use tables, and .print within them	program		twenty-sixth
=	=	Microsoft Excel program , how to run it, download numerical values in columns and store, add new columns or rows, and apply some functions such as addition and other mathematical .operations	Microsoft Excel program	١٢	Twenty-seventh - thirtieth
Course evaluation .٧٠					
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc					
Learning and teaching resources .٧١					
Website of the Technical Institute - Najaf			Required textbooks (methodology, if any)		
by Nasser Hassan book3D AutoCAD -١ Ismail 3d max blue box -2020 revit model -٢ design iteration turn the page based Lectures given by the professor -٣ . on practical experience Scientific competition between students based on ,through drawings on AutoCAD .creativity and distinction			Main references (sources)		
			Recommended supporting books and references (scientific journals, reports....)		

Internet sites

Electronic references, Internet sites

Course Description Form(7)

	Course Name.٧٢
The first stage - Engineering drawing	
	Course Code.٧٣
-	
	Semester/year.٧٤
annual	
	Date this description was prepared.٧٥
٢٠٢٤_٢_١٩	
	Available attendance forms.٧٦
practical	
	Number of study hours (total)/number of units (total).٧٧
weekly / ١٢ ٦	
	Name of the course administrator (if more than one name is mentioned).٧٨
: leans one The / Marwa Fouad Manhar : Name Marwa22312@atu.edu.iq	
	objectives Course.٧٩
	Objectives of the study subject
Teaching the student the basic principles of engineering drawing and computer drawing .programs in an efficient and rapid manner, to enable him to express his ideas through it	
	: Teaching and learning strategies.٨٠
Qualifying the student to draw and read engineering maps with knowledge of 1 .architectural and construction terms used in maps	The strategy

Course structure.^^

Study plan (suggested)

First academic year

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
+Oral exams Editorial	Lecture + applied examples	basics Engineering drawing, tools Used, installing the board, types of fonts, writing in geometric calligraphy	basics Engineering drawing	٦	the first
=	=	Geometric operations, bisecting a line segment, bisecting an angle, connecting a straight line with a circle with an arc, connecting two straight lines with an arc, drawing an equal triangle Polygon, pentagon, hexagon, straight line tangent to two circles inside and outside, arc tangent to two circles inside and outside	Engineering operations	٦	the second
=	=	Ellipse, drawing	Ellipse	٦	the third

		application Shapes Engineering using basic engineering processes			
=	=	principles Projection, placement method Dimensions On drawing, exercises on projection	principles Projection	٦	the fourth
=	=	Isometric perspective drawing	Perspective drawing	٧	Fifth
=	=	finding The missing projection with isometric perspective drawing	finding The missing projection with isometric perspective drawing	٦	VI
=	=	Clips	Clips	٦	Seventh
=	=	AutoCAD applications, redefining the relationship between the AutoCAD program and its use in creating two-dimensional) drawings2D) .and ()) three-dimensional3D () and open a new page in the program, specify the) drawing areaLimits ,() draw a panel frame and a data table, while applying writing inside the data	AutoCAD applications	٦	VIII

		table)Text(
=	=	Recognition Species Fonts and method Obtain it and use it in a program autocad from By placing it in multiple layersand colors Different and different thickness(Line weight)	Recognition Species lines	٦	Ninth
=	=	fee Shapes Engineering Fundamental, triangle, pentagon, hexagon and polygons in general, ellipse, connecting two lines with a circle sector, connecting two circles with an arc by CircleTtr directs a straight line to a circle with an arc in the same way	fee Shapes Engineering the basic	٦	The tenth
=	=	fee shapes Engineering vehicles and mechanical parts (applications to (engineering processes	fee shapes Composite engineering	١٢	Eleventh and twelfth
=	=	fee Falls For shapes Stereoscopic and placement Dimensions on it using multiple layers.	fee Falls For shapes Stereoscopic	١٢	Thirteenth And the fourteen

					th
=	=	fee Falls For shapes Stereoscopic using colors Different lines and different thicknesses by changing the properties.	fee Falls For shapes Stereoscopic using colors Different fonts	۳	Fifteenth
=	=	Find the missing projection and continue drawing the projections	Finding the lost location	۶	sixteen
=	=	situation Extras On) graphics Hatch & gradient and how to add ,(additional patterns to the program from external sources	situation Extras On fees	۶	seventeenth
=	=	Drawing a solid shape using the Isometric snap method	Drawing a solid shape using the Isometric snap method	۱۲	eighteen And the nineteenth
=	=	Draw sections in the same way (Isometric snap)	Draw sections in the same way (Isometric snap)	۶	The twentieth
=	=	How to duplicate shapes) using the command Polar array & array Rectangular (	How to repeat shapes	۶	twenty one
=	=	How to make a block to repeat geometric shapes and how to store and	Block method	۶	twenty two

		recall them			
=	=	Draw an integrated panel containing Species The drawings are(2D) and (3D) and contain a data table and an explanation of the drawings.	Drawing an integrated panel	١٢	Twenty-third and twenty-fourth
=	=	View method Shapes Different scenes on one screen using view ports command	View method Shapes	٦	٢٥th
=	=	How to transfer graphics between files and how to open more than one file using thewindow command)(	How to transfer graphics between files	٦	twenty-sixth
=	=	Individualizing geometric shapes (cube, prism, (pyramid	Individualizing geometric shapes	٦	٢٧th
=	=	Individualizing geometric shapes (truncated (pyramid, cone	Individualizing geometric shapes	٦	Twenty-eighth
=	=	Dealing with the drawing scale and printing method using theplot command (	Dealing with scale drawing	٦	XXIX
=	=	How to export drawings fromdwg format to (pdf) As well as(psd) to create virtual printers	How to export drawings	٦	thirty

Course evaluation .^{٨٢}	
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources .^{٨٣}	
Website of the Technical Institute - Najaf	Required textbooks (methodology, if any)
	Main references (sources)
Systematic engineering drawing book	Recommended supporting books and references (scientific journals, reports....)
Internet sites	Electronic references, Internet sites

Course Description Form(8)

Course Name .^{٨٤}	
Laboratories - first stage	
Course Code .^{٨٥}	
-	
Semester/year .^{٨٦}	
annual	
Date this description was prepared .^{٨٧}	
٢٠٢٤ / ٢ / ١٩	
Available attendance forms .^{٨٨}	
practical	
Number of study hours (total)/number of units (total) .^{٨٩}	
weekly / ٦٣	

Name of the course administrator (if more than one name is mentioned).^{٩٠}					
:Asaad Abdel Zahra / Email : Namewww.eng.asaad65@gmail.com					
objectives Course.^{٩١}					
Objectives of the study subject					
Acquiring the manual skill in using hand tools, measuring tools, and operating machines necessary to prepare the student as a technician in the building and construction specialization					
Teaching and learning strategies.^{٩٢}					
Acquiring the manual skill in using hand tools, measuring tools, and operating machines necessary to prepare the student as a technician in the building and construction specialization					The strategy
Course structure.^{٩٣}					
Study plan (suggested)					
First academic year					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Oral +exams Editorial	Lecture + practical examples	Industrial safety: general rules for accident prevention, health care equipment and methods of using them	Industrial Safety	٦	the first And the second
=	=	Carpentry: The basic principles of carpentry models and the use of hand tools (cut-off saw, jigsaw, (hammer, planer, drill, file	Carpentry	٦	the third And the fourth And the fifth

=	=	Use of band saw machines, disc machines, planers, and .press machines	Using a saw machine	۳	VI
=	=	Filing: Training students on filing work and using measuring tools, files, automatic sawing devices , .hooks, and drills	The filings	۶	Seventh And the eighth
=	=	Lathe: Using different lathes, lathe operations plane, internal draw,) .(different tooth work	Lathing	۶	Ninth And the tenth
=	=	Plumbing: industrial safety in casting, molds, mold formation, and plumbing .work steps	Plumbing	۳	eleventh
=	=	Welding: A. Occupational safety and security .precautions B. Used tools and industrial safety .equipment C. Types of welding (gas, ultrasonic, pressure welding, electric arc .(welding	Welding	۱۵	twelveth And the thirteenth And the fourteenth And the fifteenth And the sixteenth
=	=	Metal cutting and bending: Devices and machines used	Devices and machines used in	۶	seventeenth

		in cutting and bending metal sheets and reinforcing steel bars	cutting and bending metal sheets and rebar		And the eighteenth
=	=	Plumbing: Training the student on the rolling mill machine and the process of planning on plates	Plumbing	٦	nineteenth And the twenty
=	=	Measurement processes and tools used (tape, vernier, micrometer)	Measurement operations	٦	٢١st Twenty-second
=	=	Practical applications for carpentry works for civil constructions, including	Practical applications for woodworking	٣	twenty third
=	=	Work: Wooden doors press doors, packing) (doors	a job wooden doors	٣	twenty fourth
=	=	.Work: wooden molds	Work: wooden molds	٣	٢٥th
=	=	Applications on reinforcing steel, making roof, bridge and column reinforcement cutting iron, bending iron) (and welding pieces	Applications to reinforcing steel	٦	twenty-sixth The twenty-seventh
=	=	Exercises on cutting and joining structural steel using rivets, screws, and welding	Exercises on cutting and joining steel	٦	Twenty-eighth The twenty-ninth
=	=	Stone and plastering	Stone and stone	٣	thirty

		works: cutting, sawing, .smoothing, perforation	works		
Course evaluation .٩٤					
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc					
Learning and teaching resources .٩٥					
Website of the Technical Institute - Najaf			Required textbooks (methodology, if any)		
Building Construction Book / ١٩٨٦ / -١ University of Baghdad Written by: Ertin Levon and Zuhair Sako Building Construction and Factory -٢ Construction ١٩٩١/Technical Education Authority - Prepared by: Adnan Al-Dahan and Sarmad Fakhri Al-Nuaimi			Main references (sources)		
			Recommended supporting books and references (scientific journals, reports....)		
Internet sites			Electronic references, Internet sites		

Course Description Form(9)

	Course Name .٩٦
Technical English - first stage	
	Course Code .٩٧
-	

Semester/year . ^{٩٨}	
annual	
Date this description was prepared . ^{٩٩}	
٢٠٢٤ / ٢ / ١٩	
Available attendance forms . ^{١٠٠}	
theoretical	
Number of study hours (total)/number of units (total) . ^{١٠١}	
weekly / ٢٢	
Name of the course administrator (if more than one name is mentioned) . ^{١٠٢}	
: Name Doaa Doaa.zaid@atu.edu.iq : Email / Muhammad Abd Zaid	
objectives Course . ^{١٠٣}	
Objectives of the study subject	
The student reviews the basic, simplified rules of the English language that he had previously studied in the previous stages, but at length, as well as gradually introducing the student to the .atmosphere of technical terminology related to civil specialization in its various branches	
Teaching and learning strategies . ^{١٠٤}	
a . The theoretical part represents 40% of the total allocated hours, equivalent to 12 .weeks B: The practical part represents 60% of the total hours allocated, which is equivalent to 8 .weeks	The strategy

Week	Sylibus
------	---------

First	A/ pronunciation: voiceless consonants B/ elements of sentence structure C/ patterns of sentences
Second	A/pronunciation : voiceless consonants (ii) B/ the part of speech: 1.nouns 2.verbs 3. Adjectives 4. Adverbs
Third	A/ pronunciation : voiced consonants (I) B/ the parts of speech : 1. articles 2. Demonstratives 3. Pronouns 4. Prepositions 5. Conjunctions 6. Interjunctions
Forth	A/ pronunciation: voiced consonants (ii) B/ classification of verbs
Fifth	A/ pronunciation : pure vowels B/ pronouns (I)
Sixth	A/pronunciation :diphthongs B/pronounce (II)
Seventh	A/ types of questions B/genitives
Eighth	A/ the present simple tense B/the present continuous tense C/ the present perfect tense
Ninth	A/ the past simple tense B/ the past perfect tense C/ future
Tenth	A/ active and passive voice B/ the number system in English
Eleventh	A/punctuation

Twelveth	A/business letters B/tenders
Thirteenth- Thirty	Comprehensive paragraphs about the branches of civil engineering
	Interpretation of the above mentioned paragraphs
	Extracting the technical terms
	Making an independent sentences by using the terms.
	Writing a composition using the terms related to the subject under discussion

Course evaluation .١٠٥	
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources .١٠٦	
Website of the Technical Institute - Najaf	Required textbooks (methodology, if any)
Headway English course for intermediate 2and beginners 1	Main references (sources)
	Recommended supporting books and references (scientific journals, reports....)
Internet sites	Electronic references, Internet sites

(١٠) Course Description Form

	Course Name	.١٠٧
The first stage - Human rights and democracy		
	Course Code	.١٠٨
-		
	Semester/year	.١٠٩
annual		
	Date this description was prepared	.١١٠
٢٠٢٤ ٢ ١٩		
	Available attendance forms	.١١١
theoretical		
	Number of study hours (total)/number of units (total)	.١١٢
weekly / ٤ ٢		
	Name of the course administrator (if more than one name is mentioned)	.١١٣
: Amil- Name: Muhammad Abd Al-Rida / Al		
	objectives Course	.١١٤
Objectives of the study subject		
Introducing the student to human rights, their goals and development in various eras, and the role of international organizations and public opinion in respecting and protecting human rights		
	Teaching and learning strategies	.١١٥
Introducing the student to human rights, their goals and development in various eras, and the role of international organizations and public opinion in respecting and protecting human rights	The strategy	

Course structure .١١٦					
Study plan (suggested)					
First academic year					
Evaluati on method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Oral +exams Editoria l	Lecture + practical examples	Human rights, their definition, and goals	General information about human rights	٢	the first
=	=	The roots of human rights and their development in human history: human rights in ancient and medieval times	Its development	٢	the second
=	=	ancient Human rights in civilizations, especially the Mesopotamian civilization	Knowledge of human rights in ancient civilizations	٢	the third
=	=	Human rights in divine laws, with a focus on human rights in . Islam	Knowledge of human rights in divine laws	٢	the fourth
=	=	Human rights in the Middle Ages: Human rights in doctrines, schools, and political	Knowledge of human rights in the Middle Ages	٢	Fifth

		theories. Human rights in companies and their declarations, revolutions, and constitutions (English documents: the American Revolution - the French Revolution - the Russian .(Revolution			
=	=	rights in contemporary and modern history : international recognition of human rights since World War I and the .League/United Nations	Human rights in contemporary history	۲	VI
=	=	Regional recognition of human rights: European Convention on Human Rights1950 American , Convention on Human Rights 1969 African Charter on , Human Rights1981 Arab , Charter on Human Rights1994	Regional recognition of human rights	۲	Seventh
=	=	NGOs and human rights International Committee of the) Red Cross, Amnesty International, Human Rights (Watch	Non-governmental organizations and human rights	۲	VIII
=	=	National human rights organizations	National human rights organizations	۲	Ninth

=	=	Human rights in Iraqi constitutions between theory .and reality	Human rights in Iraqi constitutions between theory .and reality	٢	The tenth
=	=	The relationship between human rights and public freedoms In the Universal -\ Declaration of Human Rights In regional charters and : national constitutions	The relationship between human rights and public freedoms	٤	Eleventh and twelfth
=	=	Necessary human rights and collective human rights	Essential human rights	٢	Thirteenth
=	=	Economic, social and cultural human rights, civil human .rights and politics	Economic, social and cultural human rights	٢	fourteenth
=	=	Modern human rights: facts in development, the right to a clean environment, the right to solidarity, the right to religion	Modern human rights	٢	Fifteenth
=	=	Exercises on cutting and connecting structural steel, guarantees in constitutional oversight, guarantees in freedom of the press and public opinion, the role of non-governmental organizations in	Exercises on cutting and linking guarantees in constitutional oversight	٢	sixteen

		respecting and protecting .human rights			
=	=	Guarantees of respect and protection of human rights at the national level, guarantees in the constitution and laws, guarantees in the principle of .the rule of law	Guarantees of respect and protection of human rights	۲	seventeenth
=	=	Guarantees, respect and protection of human rights at :the international level The role of the United Nations - and its specialized agencies in providing guarantees	Guarantees, respect and protection of human rights	۲	eighteen
=	=	The role of regional organizations (the Arab League, the European Union, the African Union, the Organization of American States, the (ASEAN Organization The role of international, regional, non-governmental organizations and public opinion in respecting and protecting human rights	The role of regional associations	۲	nineteenth
=	=	The general theory of freedoms: the origin of rights and	The general theory of	۲	The twentieth

		freedoms, the project's position on declared rights and freedoms, the use of the term .general freedoms	freedoms		eth
=	=	The functional nature of the concept of public freedoms: philosophical considerations of the functional right, structural considerations of the positive right, economic considerations .and public freedoms	The functional nature of the concept of public freedoms	२	२१st
=	=	The legal rule of the state of law	Identify the legal basis of the rule of law	ॢ	twenty tow And the twenty third-
=	=	Regulation of public freedoms by public authorities	Regulation of public freedoms by public authorities	२	twenty fourth
=	=	Litigation or non-judicial injustice	The concept of litigation or non-judicial injustice	२	२०th
=	=	Judicial appeal, determining the state's responsibility for its legitimate actions	Judicial appeal	२	twenty sixth-
=	=	The impact of double	The impact -	२	२१th

		judiciary on public freedoms Public freedoms under administrative jurisprudence	of double judiciary on public freedoms		
=	=	Equality: the historical development of the administrative concept	Historical development of the administrative concept	۲	Twenty-eighth
=	=	The modern development of the idea of equality	The modern development of the idea of equality	۲	XXIX
=	=	gender equality Equality between individuals according to their beliefs and race	Equality between genders and individuals	۲	thirty
Course evaluation .۱۱۷					
Distribution of the grade out of ۱۰۰ according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc					
Learning and teaching resources .۱۱۸					
Website of the Technical Institute - Najaf			Required textbooks (methodology, if any)		
There are no prescribed books, binding are used to study the subject			Main references (sources)		

Study plan
Academic year :

Suggested sources . Human Rights Book Dr. Hamid Hanoun -١ Book on Human Rights, Democracy and -٢ Public Liberties, Dr. Maher Sabry . Kazem	Recommended supporting books and references (scientific journals, reports....)
Internet sites	Electronic references, Internet sites

(suggested)
second

Notes	Material type	number of units	The number of hours			Subject	T
			M	A	n		
	Specialized	٨	٤	٢	٢	Concrete technology	١
	Specialized	٨	٤	٤	-	Construction techniques	٢
	Specialized	٨	٤	٢	٢	Soil mechanics	٣
Taught in English	Specialized	١٢	٦	٥	١	Civil drawing	٤
	Specialized	٦	٣	٢	١	Area (٢)	٥
	Specialized	٤	٢	-	٢	Construction machines	٦
Taught in English	Specialized	٦	٣	٢	١	Calculator Apps (٢)	٧
	Specialized	٦	٣	٢	١	Quantity surveying	٨
	Specialized	٤	٢	-	٢	Buildings and factory construction	٩
	Specialized	٤	٢	٢	-	The project	١٠
	help	٢	١	-	١	English	١١
		٩٦	٥٣	٢٢	٤١	the total	

Course Description Form(1)

	Course Name	.119
The second phase - Concrete techniques		
	Course Code	.120
-		
	Semester/year	.121
annual		
	Date this description was prepared	.122
٢٠٢٤ / ٢ / ١٩		
	Available attendance forms	.123
Theoretical - practical		
	Number of study hours (total)/number of units (total)	.124
weekly / ٨ ٤		
	Name of the course administrator (if more than one name is mentioned)	.125
:Aymil - Name : Marwa Fouad/ Al Marwa22312@atu.edu.iq		
	objectives Course	.126
Objectives of the study subject		
Teaching the student the basic principles of concrete components and their composition, the different methods of pouring and producing concrete on construction sites, the types of modern concrete, and the practical details of concrete works		
	Teaching and learning strategies	.127
Teaching the student the basic principles of concrete components and the composition, the different methods of pouring and producing concrete on construction sites, the types of modern concrete, and the practical details of concrete works		The strategy

.works					
Course structure .١٢٨					
Study plan (suggested)					
Second academic year					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Oral exams + Editorial	Lecture + practical examples + laboratory	A general review of materials used in concrete. Definitions: Regular concrete, reinforced concrete, cast-in-place concrete, premixed concrete, precast .concrete, prestressed concrete	Materials used in concrete	٢	the first
=	=	Production and mixing of concrete, types of mixing, types of .mixers, mixing time	Concrete production and mixing	٢	the second
=	=	Properties of fresh concrete: .workability and consistency Tests for fresh concrete: fluidity test, penetration test, precipitation test, compaction factor test, reshaping test with vibration and reciprocating vibration, and study of factors . .affecting workability	Soft concrete	٤	the third And the fourth
=	=	Properties of fresh concrete:	Properties of fresh	٤	Fifth

		bleeding, separation, plastic shrinkage, and unit weight in .fresh concrete	concrete		And the sixth
=	=	The effect of air voids and methods of measuring them, calculating unit weight, yield, cement agent in fresh concrete, density equation and absolute volume equation to calculate .concrete components	The effect of air voids and methods for measuring them	₪	Seventh and VIII
=	=	Transporting, pouring and .placing regular concrete	Transporting, pouring and placing regular concrete	۲	Ninth
=	=	Curing (curing) concrete, .pouring in hot and cold climates	Casting in hot and .cold climates	۲	The tenth
=	=	Pumping concrete, properties of concrete in pumping, devices .used in pumping	Properties of concrete in pumping	۲	eleventh
=	=	Ready-mixed concrete: its definition, benefits and mixer ,production methods . trucks and vibrating trucks	Ready mixed concrete	۲	twelfth
=	=	Resistance of hardened concrete, nature of concrete resistance, .types of resistance	Resistance of hardened concrete	۲	Thirteenth
=	=	Concrete strength tests:	Concrete		fourteenth

		compressive strength test, tensile strength test, (bending tensile test .(and splitting tensile test	resistance tests		nth
=	=	Factors affecting the strength of .hardened concrete Factors affecting the results of strength tests of hardened .concrete	Factors affecting the strength of hardened concrete	۲	Fifteenth
=	=	Concrete shrinkage: drying shrinkage, differential shrinkage, .carbonation shrinkage	Concrete shrinkage	۲	sixteen
=	=	Concrete additives: their definition, their benefits and uses, the main materials used in their composition, and the notes that .must be taken when using them	Additives for concrete	۲	seventeenth
=	=	accelerators, : Types of additives retarders, plasticizers, air vacuum makers, silica dust, bubblers, moisture preventers, .weight reducers...etc	Types of additives	۲	eighteenth
=	=	Design of concrete mixes: A- The .American method	Design of concrete mixes	۲	nineteenth
=	=	Design of concrete mixes: B- The	Design of concrete	۲	The

		.British method	mixes		twentieth
=	=	Applied issues for designing ordinary mixtures	Applied issues for designing ordinary mixtures	۲	۲۱st
=	=	Applied issues for designing mixtures containing additives	Applied issues for designing mixtures containing additives		twenty tow
=	=	Non-destructive tests for concrete: radiation methods, hardness methods, pulse methods and resonance methods	Non-destructive tests for concrete	۲	twenty third
=	=	Use offiberssuch as , In concrete fibers (plastic, glass, iron, wood)	Use offibers	۲	twenty fourth
=	=	The use of polymersin concrete, . polymeric concrete	Use ofpolymers	۲	۲۵th
=	=	block, :Special types of concrete heavy concrete, ,lightweight pre-placed , underwater concrete) aggregate concretePAC .(	Special types of concrete	۲	twenty-sixth
=	=	Special types of concrete: High) Performance ConcreteHPC ,() High Strength ConcreteHSC ,(	Special types of concrete	۴	۲۷th Twenty eighth-

Course Form(2)

Description

		) Self Compacting Concrete SCC) Reactive Powder Concrete ,(
		RPC) Reinforced Concrete ,(	Course evaluation		.١٢٩
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc					
		repairing, maintaining and	Resources of learning and teaching-١٢٠		.١٣٠
Website of the Technical Institute - Najaf			Using some modern materials such as epoxy and carbon fibres	Required textbooks (methodology, if a Main references (sources)	XXIX if a thirty
Source: Concrete Technology - Jalal Bashir -١					
The Internet and related books in Arabic and English -٢					
			Recommended supporting books and references (scientific journals, (...reports		
Internet sites			Electronic references, Internet sites		

	Course Name .١
Soil mechanics - second stage	
	Course Code .٢
-	
	Semester/year .٣
annual	
	Date this description was prepared .٤
٢٠٢٤ ٢ ١٩	
	Available attendance forms .٥
Theoretical - practical	
	Number of study hours (total)/number of units (total) .٦

Λ/ε					
Name of the course administrator (if more than one name is mentioned) .√					
:Amiel - Name: A.M. Hussein Ali Muhammad Alinj.hus@atu.edu.iq					
objectives Course .Λ					
The general and specific objective of the course: teaching the student the basic principles of concrete components and their composition, the different methods of pouring and producing concrete construction sites, the types of modern concrete, and the practical details of concrete works					
Teaching and learning strategies .9					
Reading various plans, drawings and designs in engineering specializations .1 Conducting theoretical calculations for various issues in the field of expertise .2 .Conduct on-site soil investigation- .3				The strategy	
Course structure .1 .					
Study plan (suggested)					
Second academic year					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week

Oral +exams Editorial	Lecture + practical examples + laboratory	A general introduction to soil and rock geology	Definition of soil and how it is formed	ε	the first
=	=	Soil components, soil physical properties, granular analysis	Soil types and their physical properties	^	The second and third
=	=	Plasticity properties of soil	Utterbrack borders	^	Fourth and fifth
=	=	Soil classification, using the unified classification method)UCS (	Soil classification	^	Sixth and seventh
=	=	Permeability in soft and coarse soil and methods for measuring it in the field and laboratory	Permeability in soil	^	Eighth and ninth
=	=	Types of stresses in the soil, total stress, effective stress, lateral pressure	Stresses in the soil	^	The tenth and eleventh
=	=	Improving soil properties, mechanical method	Improving soil properties		twelveth
=	=	Types of laboratory and field soil tests	Soil tests	^	thirteenth and fourteenth
=	=	Using traditional methods to stabilize the soil and improve its properties	Soil stabilization	ε	Fifteenth
=	=	Using modern methods to	Soil	ε	sixteen

		stabilize the soil and improve its properties (soil reinforcement and types of .(materials used	stabilization		And seventeenth
=	=	California endurance ratio) for road worksCBR .(	Soil bearing for road works	^	And the eighteenth
=	=	Attachment to the soil and its relationship to subsidence	Soil subsidence	€	nineteenth And The twentieth
=	=	The phenomenon of swelling and collapse	Problems related to changing soil volume	€	21st
=	=	Defining the shear resistance of the soil, calculating the amount of bearing resistance .of the piping press	Shear resistance of soil	€	twenty tow
=	=	Unconfined shear examination	Find shear resistance	€	twenty third
=	=	Direct shear examination	Find shear resistance		twenty fourth
=	=			€	
=	=	Triaxial shear examination	Find shear resistance	€	20th twenty-sixth
=	=	Field shear tests	Find field shear	€	27th

			resistance		
=	=	Types of foundations and their relationship to soil tolerance	Types of foundations	€	Twenty-eighth
=	=	Types of shallow and deep foundations and piles	Shallow and deep foundations	€	XXIX
=	=	Introduction to soil investigation work, types of models, methods of taking them, and preparing and depth of test pits that must be carried out in the laboratory	Soil investigation work	€	thirty
Oral +exams Editorial	Lecture + practical examples + laboratory	A general introduction to soil and rock geology	Definition of soil and how it is formed	€	<i>the first</i>
=	=	Soil components, soil physical properties, granular analysis	Soil types and their physical properties	^	The second and third
=	=	Plastic properties of soil	Utterbrack borders	^	Fourth and fifth
=	=	Soil classification, using the unified classification method)UCS (	Soil classification	^	Sixth and seventh
=	=	Permeability in soft and	Permeability	^	Eighth and

		coarse soil and methods for measuring it in the field and .laboratory	ty in soil		ninth
=	=	Types of stresses in the soil, total stress, effective stress, .lateral pressure	Stresses in the soil	^	The tenth and eleventh
=	=	Improving soil properties, .mechanical method	Improving soil properties		twelveth
=	=	Types of laboratory and field soil tests	Soil tests	^	thirteenth and fourteenth
=	=	Using traditional methods to stabilize the soil and improve .its properties	Soil stabilization	ε	Fifteenth
=	=	Using modern methods to stabilize the soil and improve its properties (soil reinforcement and types of .(materials used	Soil stabilization	ε	sixteen And seventeenth
=	=	California endurance ratio) for road worksCBR .(	Soil bearing for road works	^	And the eighteenth
=	=	Attachment to the soil and its relationship to subsidence	Soil subsidence	ε	nineteenth And The twentieth
=	=	The phenomenon of swelling and collapse	Problems related to changing	ε	21st

			soil volume		
=	=	Defining the shear resistance of the soil, calculating the amount of bearing resistance .of the piping press	Shear resistance of soil	€	twenty tow
=	=	Unconfined shear examination	Find shear resistance	€	twenty thir
=	=	Direct shear examination	Find shear resistance	€	twenty four h
=	=	Triaxial shear examination	Find shear resistance	€	٢٥th twenty-sixt
=	=	Field shear tests	Find field shear resistance	€	٢٧th
=	=	Types of foundations and their relationship to soil tolerance	Types of foundatio ns	€	Twenty-eigh h
=	=	Types of shallow and deep .foundations and piles	Shallow and deep foundatio ns	€	XXIX
=	=	Introduction to soil investigation work, types of models, methods of taking them, and preparing and depth of test pits that must be carried out in the .laboratory	Soil investigati on work	€	thirty

Course evaluation-١١.١١	
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc	
Resources of learning and teaching-١٢.١٢	
Website of the Technical Institute - Najaf	Required textbooks (methodology, if any)
bookASTM Manual -٣ Soil Mechanics Book / Dr. Hamid Al-Saidi -٤ The Internet and related books in Arabic and English -٥	Main references (sources)
	Recommended supporting books and references (...scientific journals, reports)
Internet sites	Electronic references, Internet sites

Course Description Form(3)

Course Name.١٣
Construction techniques – second stage
Course Code.١٤
-
Semester/year.١٥
annual
Date this description was prepared.١٦

٢٠٢٤ ٢ ١٩					
Available attendance forms. ١٧					
practical					
Number of study hours (total)/number of units (total). ١٨					
٨ / ٤					
Name of the course administrator (if more than one name is mentioned). ١٩					
- Name: Ali Adel AlZuhairi aliadelalzuhairi@atu.edu.iq /					
objectives Course. ٢٠					
Providing the student with manual skills and qualifying him to carry out construction and building works so that he will be qualified upon graduation to efficiently supervise the work					
Teaching and learning strategies. ٢١					
Providing the student with manual skills and qualifying him to carry out construction and building works so that he will be qualified upon graduation to efficiently supervise the work					The strategy
Course structure. ٢٢					
Study plan (suggested)					
Second academic year					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week

Oral +exams Editorial	Lecture + practical examples + laboratory	Foundation planning, using surveying equipment	Foundatio n planning	ε	the first
=	=	Excavations, and supporting .the sides of the excavation	Excavatio ns	^	the second
=	=	Making and strengthening a foundation for a wall or support	Making and strengthen ing a foundatio n for a wall or support	^	the third
=	=	How it works and the machines used for that. A scientific film .for pile works, types	And how it works The pillars	^	the fourth
=	=	Brick construction work, English bonding, German bonding, other types of .bonding	Brick building works	^	Fifth and sixth
=	=	Block construction (block, .(thermostone	With blocks block,) thermosto .(ne	^	Seventh

=	=	Wooden template work, training on making a wooden template for a column, bridge, .stairs and roofs	Wooden mold work		Eighth and ninth
=	=	Pouring regular and reinforced concrete and using manual mixing, as well as training on .automatic mixing	Formwork of ordinary and reinforced concrete	^	The tenth
=	=	A scientific visit to the site of making a wooden mold and .pouring concrete	A scientific visit to a wooden block making site	€	And the eleventh
=	=	Reinforcing works, rebar, the correct way to use it, making reinforcement models for a .column, roof, and bridge	Reinforcing works	€	The twelfth and thirteenth
=	=	Iron works, iron structural sections and aluminum sections, and when they are not available, a scientific film is .shown for that	Iron works	^	And the fourteenth
=	=	Application with cashier and	Application with	€	Fifteenth

		.sticker	cashier and sticker		
=	=	Moisture-preventing works, training on the use of some moisture-repellent materials and how to use them optimally, such as asphalt felt, bituminous materials, according to what is .available	Moisture proofing works	€	sixteen And seventeenth
=	=	Showing a scientific film about thermal insulation materials: their types, how to use them, .and their benefits	Showing a scientific film about thermal insulation materials	€	And the eighteenth
=	=	Whitewashing works, whitewashing of a wall using .plaster	Whiteness works	€	nineteenth
=	=	:Ficus and prose works .Using cement mortar .١ Using cement mortar - .٢ .Noura	Ficus and prose works		Twenty and twenty -first
=	=	Packaging works with Al- .Furfouri Kashi	Cashier packaging works	€	twenty tow
=	=	Wall covering works, wall	Wall	€	twenty third

		.covering using solutions	covering works		
=	=	Secondary ceilings (Moroccan), making a model of a Moroccan ceiling, training on how to .install them	Secondary ceilings	€	twenty-fourth
=	=	Dyeing work (training on how to use it and how to adapt each .(type to the dyed surface	Painting works	€	٢٥th
=	=	Sanitary works: Training the student on how to lay sewage pipes, clear water pipes, and the locations of sinks, bathtubs , .toilets, etc	Health : business	€	twenty-sixth
=	=	Electrical works: Training the student on making the rails and the correct finishing around them and how to install some electric lamps (establishing a .(light point and blocks	Electrical Works	€	٢٧th
=	=	Mechanical works: making ventilation ducts (i.e. making a duct .(for a refrigerator	Mechanical works	€	Twenty-eighth
=	=	Road works: Foundation work and under the foundation for a	Road works are	^	Twenty-ninth and thirty-ninth

		.road (as a model)	foundatio n work		
Course evaluation-١١.٢٣					
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc					
Resources of learning and teaching-١٢.٢٤					
Website of the Technical Institute - Najaf			Required textbooks (methodology, if any)		
<p>Building construction book by _ Martin Levon and Zuhair Sacco Videos available on the Internet, _ such as YouTube, which explain the stages of work as a reality if the material is practical and does not .have a theoretical aspect For example, specialized videos are selected that explain the practical steps and common mistakes during work, according to the lecture, such as flattening, interior plastering, application of caulk, making wooden and iron molds, electrical and....mechanical works, insulation, etc In addition to lectures presented by the subject professor and specialized assistant technicians, based on</p>			<p>Main references (sources)</p>		

.practical experience	
	Recommended supporting books and references (...scientific journals, reports)
Internet sites	Electronic references, Internet sites

Course Description Form(4)

	Course Name. ٢٥
Civil drawing - second stage	
	Course Code. ٢٦
-	
	Semester/year. ٢٧
annual	
	Date this description was prepared. ٢٨
٢٠٢٤ / ٢٠١٩	
	Available attendance forms. ٢٩
Theoretical - practical	
	Number of study hours (total)/number of units (total). ٣٠
١٢ / ٦	
	Name of the course administrator (if more than one name is mentioned). ٣١
Name rusul.hussein.inj@atu.edu.iq :Rusul Hussein :	
	objectives Course. ٣٢
Teaching the student the construction details and the details of all construction works so that he qualified to understand the executive maps and transfer their information to the work site and to workers to implement them. The student also learns the principles used in preparing sets of executi	

.maps					
Teaching and learning strategies .٣٣					
Teaching the student the construction details and the details of all construction works so that he is qualified to understand the executive maps and transfer their information to the work site and the workers to implement them. The student also learns the principles used in .preparing sets of executive maps					The strategy
Course structure .٣٤					
Study plan (suggested)					
Second academic year					
Evaluation method	Learnin g method	Name of the unit or topic	Required learning outcomes	hours	the week
Oral +exams Editorial	Lecture + practical examples + laboratory	Introduction to structural drawing, architectural and terminological symbols, lines in maps, drawing models for building and construction materials, drawing scale, executive maps, and types of .brick and block construction	introducti on	٦	the first
=	=	Drawing the horizontal plan of a residential house or small building, the plan of the first	Draw the horizontal chart	٦	the second

		floor, and determining the longitudinal and cross-sections .and the facades			
=	=	Drawing longitudinal and cross-sections and detailed sections of the finishing layers for floors, ceilings, and .surfacing	Draw longitudinal and cross sections	٦	the third
=	=	Introduction to sanitary drawing and structures for water and sanitary establishments and sanitary furniture, and then drawing the network of water and sanitary establishments for the previous .horizontal plans	Introduction to health drawing	٦	the fourth
=	=	Drawing the structural details of the inspection basins and linking them to the health .facilities network	Drawing the structural details of the inspection basins	٦	Fifth
=	=	Drawing the structural details of the septic tanks and storage (drains) attached to the house	Drawing the structural details of	٦	VI

		.plan	septic tanks and storage		
=	=	Introduction to concrete and construction principles, concrete bearing stresses and the necessary types of reinforcement steel, and drawing symbols used in maps .and construction details	Introduction to concrete and construction principles	٦	Seventh
=	=	Concrete slabs, their types, the transmission of loads through them and the necessary reinforcement for them, along with drawing the structural details of solid, unidirectional .slabs	Concrete slabs	٦	VIII
=	=	Drawing the structural details .of solid two-way slabs	Drawing the structural details of solid two-way slabs	٦	Ninth
=	=	Drawing the structural details of one- and two-way polygonal .slabs	Drawing the structural details of	٦	The tenth

			one- and two-way polygonal .slabs		
=	=	Introduction/Types of concrete joists and drawing the structural details of simple .support joists with sections	Introduction to tributaries	6	eleventh
=	=	Drawing structural details for .continuous joists and sections	Drawing the structural details of the joists	6	twelveth
=	=	Drawing the structural details of the monolithic tributaries .along with their sections	Drawing the structural details of the joists	6	Thirteenth
=	=	Introduction with a drawing of the structural details of precast .prestressed joists	Introduction with a drawing of the structural details of precast prestressed joists	6	fourteenth
=	=	Drawing (key) for the joists of a	Horizontal chart	6	Fifteenth

		building, a horizontal structural plan, and fixing .tables and details of the joists			
=	=	Drawing the structural details of the types of concrete columns, drawing the longitudinal and cross-sections, and showing the reinforcement .of the columns	Drawing the structural details of types of concrete columns	٦	xvi twentieth
=	=	Drawing structural details and vertical sections to illustrate the bonding of reinforcing steel for .columns of successive floors	Drawing structural details and vertical sections	٦	seventeenth
=	=	Introduction to foundations/their types and principles of operation, and drawing the structural details of the single foundation, combined foundation, and wall .foundations	Introducti on to foundatio ns	٦	eighteen
=	=	Drawing the structural details of continuous foundations and .mat foundations	Drawing the structural details of continuou s	٦	nineteenth

			foundations and mat foundations		
=	=	Drawing the structural details of the pile foundations and their types with the hat	Drawing the structural details of the foundations of the pillars	٦	The twentieth
=	=	Identifying concrete stairs and their types: a straight staircase, a half-straight staircase, a spiral staircase, and drawing their structural details	Getting to know concrete stairs	٦	٢١st
=	=	Drawing structural details of joints in buildings, expansion joints, structural joints	Drawing the structural details of joints in buildings	٦	XXII

=	=	Drawing the structural details of the reinforced walls of elevators and basement walls	Drawing the structural details of the reinforced walls	٦	twenty three
=	=	Introduction to manufactured and prefabricated construction and drawing the structural details for connecting walls with prefabricated ceilings	Introduction to prefabricated and manufactured construction	٦	twenty four h
=	=	Introduction to steel structures, their sections, tables, and how to obtain specifications and details of their sections	Introduction to steel structures	٦	٢٥th
=	=	Drawing the structural details for the connection of steel parts according to their load bearing	Drawing the structural details of the connection of steel	٦	twenty-sixth

			parts		
=	=	Bonding of steel foundations and bases, bonding of steel columns, bonding of joists to each other	Bonding of steel foundations and foundations	6	27th
=	=	Details of the steel gable drawing and the connection of its ribs	Steel gable drawing details	6	Twenty-eighth
=	=	Using the computer and its applications in structural drawing of reinforced concrete structures	Using the computer and its applications in construction drawing	12	Twenty-nine and thirty-nine
Course evaluation-11.35					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc					
Resources of learning and teaching-12.36					
Website of the Technical Institute - Najaf			Required textbooks (methodology, if any)		
RANGWALA, 2017: Civil -1			Main references (sources)		

Engineering Drawing Edition 3rd -2 Including Computer aided building) -3 ISBN: 938503930X (drawing	
ISBN-13: 978-9385039300 ISBN-10.	Recommended supporting books and references (...scientific journals, reports)
Internet sites	Electronic references, Internet sites

Course Description Form(5)

	Course Name .37
The second phase - Buildings and factory construction	
	Course Code .38
-	
	Semester/year .39
annual	
	Date this description was prepared .40
2022 / 19	
	Available attendance forms .41
theoretical	
	Number of study hours (total)/number of units (total) .42
4 / 2	
	Name of the course administrator (if more than one name is mentioned) .43

Name nabeelkl@atu.edu.iq : Nabil Kaftan/ AL :					
objectives Course. ٤٤					
Providing the student with the necessary information about the stages of implementation of traditional and manufactured buildings, the works that fall within each stage, and the .appropriate construction machines for each work					
Teaching and learning strategies. ٤٥					
Enabling the student to organize the site, direct the works, and supervise their implementation, and teach the student the basic .principles and supervision of factory construction					The strategy
Course structure. ٤٦					
Study plan (suggested)					
Second academic year					
Evaluation method	Learnin g method	Name of the unit or topic	Required learning outcomes	hou rs	the week

Oral +exams Editorial	Lecture + practical examples + laboratory	Introduction to the methods of implementing construction projects and the relevant parties and the tasks of each member of the construction project team, especially the technicians	Implementing construction projects	٦	the first
=	=	Organizing and planning the work site and the factors that affect it, along with preparing a plan for the work site for a specific project	Organizing and planning the work site	٦	the second
=	=	Earthen excavations, methods of supporting the sides of excavations, excavation of basements	Earth excavations	٦	the third
=	=	Techniques used to withdraw groundwater during construction	Techniques used to withdraw groundwater	٦	the fourth
=	=	Dictations of dirt and the correct methods for making them, layers of roads and methods of implementing them	Earth dictates	٦	Fifth
=	=	Moisture-preventing layers for both basements and walls,	Moisture repellent layers	٦	VI

		flatness			
=	=	Construction of walls with bricks, types of bricks, methods of joining, seams	Building walls with bricks	٦	Seventh
=	=	Building walls with stone (types of stone preparation, types of connection, joints	Building walls with stone	٦	VIII
=	=	Building walls with construction blocks (types of blocks and their specifications	Building walls with construction blocks	٦	Ninth
=	=	All types of interior wall finishing techniques	Interior wall finishing techniques	٦	Tenth
=	=	Techniques for finishing external walls of all kinds	Techniques for finishing walls from the outside	٦	eleventh
=	=	Methods of finishing floors for the ground floor, other floors and ceilings	Methods of finishing floors	٦	twelfth
=	=	Thermal insulation techniques	Thermal insulation techniques	٦	Thirteenth
=	=	Concrete formwork (types, requirements, components	Concrete molds	٦	fourteenth

=	=	Lifting molds, causes of mold collapse, sliding molds and related techniques	Uploading templates	٦	Fifteen
=	=	Scaffolding (types, components, (safety factors	Scaffolding	٦	sixteen
=	=	Secondary ceilings (types and methods of installing them) and installing air ducts	Secondary ceilings	٦	seventeen
=	=	Sanitary installations (pure water, sewage), types of pipes used for each, and methods of connection and installation	Health establishments	٦	eighteen
=	=	Doors and windows (types, (requirements, components	Doors and windows	٦	nineteen
=	=	Joints in buildings (structural joints, expansion joints), details of each type and methods of implementation	Joints in buildings	٦	Twenty
=	=	Low-cost construction and ways to rationalize costs (goals, requirements, construction methods)	Horizontal curves	٦	Twenty-first and twenty-second
=	=	Factory construction	Construction is low	٦	twenty-third

		(properties, supplies)	cost		
=	=	The different types of factory construction and the characteristics of each type	Different types of factory construction	٦	twenty fourth
=	=	Components of the factory construction plant and production method	Components of the factory construction plant and production method	٦	٢٥th
=	=	Details of structural members in manufactured construction and methods of installing them	Details of structural members in factory construction	٦	Twenty-sixth and twenty-seventh
=	=	Joints in manufactured construction (types, components and methods of (implementation	Joints in factory construction	٦	Twenty-eighth
=	=	Methods of transportation in buildings, stairs, elevators types, components,) (construction methods	Methods of transportation in buildings	٦	XXIX
=	=	Fire resistance of buildings and .fire control systems	Fire resistance of buildings	٦	thirty
Course evaluation-١١.٤٧					

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc	
Resources of learning and teaching-١٢.٤٨	
Website of the Technical Institute - Najaf	Required textbooks (methodology, if any)
Building construction book - Zuhair -١ Sako Construction Equipment Book - -٢ Ayoub Sabry Prefabricated construction brochure -٣	Main references (sources)
.Lectures given by the professor	Recommended supporting books and references (...scientific journals, reports)
Internet sites	Electronic references, Internet sites

Course Description Form(6)

Course Name.٤٩
second stage - (٢) Computer applications
Course Code.٥٠
-
Semester/year.٥١
annual
Date this description was prepared.٥٢
٢٠٢٤ _ ٢ _ ١٩
Available attendance forms.٥٣
Theoretical - practical

Number of study hours (total)/number of units (total).^{٥٤}					
٦ / ٣					
Name of the course administrator (if more than one name is mentioned).^{٥٥}					
:AMIL - the name : Raghad Mahdi Muslim / AL Raghad.muslim@atu.edu.com					
objectives Course.^{٥٦}					
Teaching the student how to use ready-made systems and their applications in .completing civil drawings					
Teaching and learning strategies.^{٥٧}					
The student will be able to use ready-made systems and their .applications to complete civil fees					The strategy
Course structure.^{٥٨}					
Study plan (suggested)					
Second academic year					
Evaluation method	Learni ng method	Name of the unit or topic	Required learning outcomes	hours	the week

Oral +exams Editorial	Lecture + practical examples + laboratory	A general review of AutoCAD	A general review of AutoCAD	۳	the first
=	=	Return menu applications Draw , Modify , Osnap .	Re-applications	۳	the second
=	=	Complete dimensions, writing, and summary viewing .	Complementary dimensions	۳	the third
=	=	Principles of drawing in three dimensions List of cortical trigrams Surface .	Principles of drawing in three dimensions	۳	the fourth
=	=	List of solids .	List of triangular drawing	۳	Fifth
=	=	Applications on commands Extrad , Revolve_Slice .	Applications on commands Extrad , Revolve_Slice .	۳	VI
=	=	Solid editing . drawing revisions	Drawing revisions	۳	Seventh
=	=	Applications about orders Union ,Subtract .	Applications about orders Union ,Subtract	۳	VIII

=	=	CompleteSolid editing commands .	CompleteSolid editing commands	۳	Ninth
=	=	Create a simple building in three .dimensions	Create a simple building in three .dimensions	۳	Tenth
=	=	Completion of the previous .building	Complete the previous building	۳	eleventh
=	=	Making a model of a horizontal section in a building (residential .house) and furnishing it	Make a model of a horizontal section	۳	twelfth
=	=	.Complete the previous form	Complete the .previous form	۳	Thirteenth
=	=	Making a longitudinal sectional model in a building (residential .house) with furnishing	Make a model	۳	fourteenth
=	=	Rendering . design principles	Design principles	۳	Fifteenth
=	=	.Add lighting to the scene	Add lighting to the scene	۳	sixteenth
=	=	.Adding materials to surfaces	Adding materials to surfaces	۳	seventeenth
=	=	Manufacture of display	Manufacture of display materials	۳	eighteenth

		.materials			
=	=	Other effects in the scene: night .lighting, backgrounds	Influences	٣	nineteen
=	=	A project to create a model of a multi-storey building with the addition of other accessories: ...trees, cars, people A simple introduction to the parallel programs for AutoCAD)3DMax .(	project	٣	Twenty
=	=	Using additional processors for the completed image - AutoCAD using thePhoto Shop program .	Using processors for the completed image	٣٠	thirty
Course evaluation-١١.٥٩					
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc					
Resources of learning and teaching-١٢.٦٠					
Website of the Technical Institute - Najaf			Required textbooks (methodology, if any)		
by Nasser book3D AutoCAD -٤ Hassan Ismail 3d max blue box -2020 revit model -٥ design iteration turn the page Lectures given by the professor -٦ . based on practical experience Scientific competition between -٧			Main references (sources)		

,3D graphics students through .based on creativity and distinction	
) Other design engineering programs3d max, revit, lumion, sketchup)	Recommended supporting books and references (...scientific journals, reports)
Internet sites	Electronic references, Internet sites

Course Description Form(7)

	Course Name .٦١
second stage - Quantity surveying	
	Course Code .٦٢
-	
	Semester/year .٦٣
annual	
	Date this description was prepared .٦٤
٢٠٢٤ / ٢ / ١٩	
	Available attendance forms .٦٥
Theoretical-practical	
	Number of study hours (total)/number of units (total) .٦٦
٦ / ٣	
	Name of the course administrator (if more than one name is mentioned) .٦٧
: Sabah Nouri / Email : Namesabah.saaid.inj@atu.edu.iq	

objectives Course.٦٨					
. Calculating quantities and analyzing prices and dimensions for construction works					
Teaching and learning strategies.٦٩					
Introducing the student to how to calculate the quantity of construction items involved in the implementation of facilities and buildings, as well as beams, and analyzing those quantities into their primary resources with the principles of calculating prices and costs, as well as contracting work, specifications, and engineering project .management					The strategy
Course structure.٧٠					
Study plan (suggested)					
Second academic year					
Evaluation method	Learnin g method	Name of the unit or topic	Required learning outcomes	hours	the week
Oral +exams Editorial	Lecture + practical examples + laboratory	Definitions of estimation, its purpose, the foundations on which estimation is based, and the benefits expected from the .estimation process	Definitions of guesswork	٦	the first
=	=	Types of estimation, units of	Types of	٦	the

		measurement used for all construction paragraphs, table .of quantities	estimation		second
=	=	Calculating the quantity of earthworks for the foundations of facilities (buildings) (various types of foundations) and explaining its schedule of quantities, mentioning the unified standard guide for these works, their specifications, and .price analysis	Calculating the amount of earthworks for the foundations of facilities	٦	Third and fourth
=	=	Calculating the quantity of structural sections under the moisture barrier (squares, foundation concrete, cubes), mentioning the unified standard guide for these works, their specifications, and their .schedule of quantities	Calculating the amount of structural sections under the moisture barrier	٦	Fifth and sixth
=	=	Calculating the quantity of structural parts above the moisture barrier (badlo), including moisture barrier concrete, building above the moisture barrier (bricks and	Calculating the amount of structural sections above the moisture barrier	٦	Seventh and eighth

		concrete blocks), and mentioning the unified standard guide for its height, specifications, and its table of quantities			
=	=	Calculating the quantity of concrete, rebar, and wooden formwork for foundations structural buildings with wall) foundations and pillar foundations), and mentioning the unified standard guide for their height and specifications	Calculate the amount of concrete	٦	The ninth and tenth
=	=	Calculating the quantity of concrete, reinforcing steel , and wooden molds for connecting bridges in structural buildings below the level of the basement and bridges above the openings, analyzing the prices, and mentioning the unified standard guide for the scope of these works	Calculate the amount of concrete	١٢	eleventh and the twelfth
=	=	Calculating the quantity of concrete, rebar, and wooden molds for columns of all types,	Calculate the amount of concrete	٦	Thirteenth

		analyzing their prices and mentioning the unified standard guide and .specifications				
=	=	Calculating the quantity of concrete, rebar, and wooden molds for various concrete works in special shapes, such as .domes and arches	Calculate the amount of concrete	٦	fourteen	en
=	=	Calculating the quantity of concrete, rebar, and wooden molds for various concrete works in special shapes, such as .domes and arches	Calculate the amount of concrete	٦	Fifteen	nt
=	=	Calculating the quantity of concrete, wooden molds, and reinforcing steel for all types of stairs, analyzing prices, and mentioning the unified standard guide for their height .and specifications	Calculate the amount of concrete	٦	seventeen	ee
=	=	Calculating the quantity of secondary roofing works of all kinds, and flattening works for all its sections (gear, paddocks,	Calculating the quantity of secondary roofing ,works of all types	٦	eighteen	en

		and stayers), and mentioning the unified standard guide for their height and specifications			
=	=	Calculating the quantity of finishing works (finished, whitewashing, spreading, and dyeing) and the furfural casing, analyzing the prices, and mentioning the unified standard guide for their type, specifications, and the table of quantities	Calculating the amount of finishing work	۱۲	nineten th And the twenty
=	=	Calculating the quantity of flooring work, casing, casing work, and covering the facades with alabaster and plaster, and mentioning the unified standard guide, its specifications, and the table of quantities	Calculating the amount of flooring work	۶	۲۱۸
=	=	Calculating the quantity of electrical and mechanical foundation works and mentioning the unified standard guide for its scope, specifications, and schedule of	Calculating the amount of electrical and mechanical installation work	۶	XX I

		.quantities			
=	=	Calculating the quantity of water and sanitary foundation works, analyzing and mentioning the unified standard guide for its scope, specifications, and schedule of .quantities	Calculating the amount of water and sanitary installation works	٦	twenty third
		Calculating the quantity of water and sanitary foundation works (walls and ceilings) and explaining their specifications, the schedule of quantities, and the unified standard guide for .that	Calculating the amount of water and sanitary installation works	٦	twenty fourth
=	=	Calculating the quantity of works and some items of steel structures and analyzing their prices, dimensions and schedule of quantities	Calculating the amount of work and some items of steel structures	٦	٢٥th
=	=	Contracts, contracting and contract organization, application books, tender form and instructions for contractors, maintenance	Contracts, contracting and contract organization, submission books	٦	twenty-sixth

		period and advances and how .to calculate them			
		Definitions of management, interpersonal relations, organization, cadre responsibilities, organization in projects, site planning and control, and engineering .management of projects	Definitions in management and relationships between individuals	٦	And the twenty-seventh
=	=	Project scheduling: work progress schedule, arrow wire .diagrams, and critical path	Project scheduling	١٢	Twenty-eight and twenty-ninth
=	=	Some applications for calculating the quantities of construction paragraphs using the computer	Some applications for calculating the quantities of construction paragraphs using the computer	٦	thirty
Course evaluation-١١.٧١					
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc					
Resources of learning and teaching-١٢.٧٢					
Website of the Technical Institute - Najaf			Required textbooks (methodology, if any)		
Lectures given by the professor -١ according to the methodological			Book of systematic quantitative surveying		

book (Quantity Surveying Book) Related sources and books in -٢ .Arabic, English, and the Internet	
	Recommended supporting books and references (...scientific journals, reports)
Internet sites	Electronic references, Internet sites

Course Description Form(8)

	Course Name.٧٣
second phase – Project	
	Course Code.٧٤
-	
	Semester/year.٧٥
annual	
	Date this description was prepared.٧٦
٢٠٢٤ ٢ ١٩	
	Available attendance forms.٧٧
practical	
	Number of study hours (total)/number of units (total).٧٨
٤ / ٢	
	Name of the course administrator (if more than one name is mentioned).٧٩
: Name / name	
	objectives Course.٨٠
Teaching students how to conduct research and practical and applied projects in various .fields of work	
	Teaching and learning strategies.٨١

Teaching the student how to search scientific sources and how to conduct research and projects with the help of specialized professors in the department, and to utilize the laboratories and equipment of the department and institute, as well as equipment in state departments, according to the available capabilities and in a manner commensurate .with the nature of the project	The strategy
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Course Description Form(9)

Course Name .^٢
Construction machines - second stage
Course Code .^٣
-
Semester/year .^٤
annual
Date this description was prepared .^٥
٢٠٢٤ / ٢ / ١٩
Available attendance forms .^٦
theoretical
Number of study hours (total)/number of units (total) .^٧
٤ / ٢
Name of the course administrator (if more than one name is mentioned) .^٨
: Maha Aboudi / Email : Namemaha.subi@yahoo.com
objectives Course .^٩
Determine the productivity of machines and their operating costs and supervise their prop . .completion of work

Teaching and learning strategies .٩٠					
Determine the productivity of machines and their operating costs and supervise their proper completion of work					The strategy
Course structure .٩١					
Study plan (suggested)					
Second academic year					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Oral +exams Editorial	Lecture + practical examples + laboratory	Construction equipment, the importance of machines, ways to obtain them, and the advantages and disadvantages of owning or renting machines, with a scientific film shown	Construction equipment, the importance of machines	٢	the first
=	=	Calculating the costs of owning machines (costs of obsolescence, investment, maintenance and repair)	Calculating the costs and ownership of machines	٢	the second
=	=	Calculating the costs of owning machines (costs of obsolescence, investment, maintenance and	Calculating the costs and ownership of	٤	The third and fourth

		.(repair	machines		
=	=	Engineering foundations for engineering machinery work, including (resistance to .(movement and the effect of tilt	Engineering foundations for engineering machinery .work	۲	Fifth
=	=	Complementing the engineering foundations of engineering machinery work (the effect of elevation, swelling and ...contraction of soil on	Complementing the engineering foundations of engineering machinery work	۲	VI
=	=	The quarry (dozer, including: description of the machine, its types, productivity calculation) .with a scientific film shown	The quarry	۲	Seventh
=	=	Loading shovel (shovel), including (its types, difference between them, productivity ,calculation, raking work cycle	Loading shovel (shake)	۲	VIII
=	=	A scientific visit to one of the business sites that has different .machines	A scientific visit to one of the business sites that has different .machines	۲	Ninth
=	=	Drilling machines, total drilling rigs, face drilling rigs with .scientific film showing	Drilling machines	۲	The tent

=	=	Drilling machines (back shovel, waterwheel shovel, oyster shovel) with a scientific film .shown	Drilling machines (back shovel, waterwheel shovel, oyster shovel)	۲	eleventh
=	=	Transport unit machines, paved and unpaved road trucks, classification of trucks according to multiple factors, tippers, productivity calculation with a scientific film .showing	Transport units ,machines	۲	twelfth
=	=	Balancing the number of tippers with the size of drilling machines, lorries, locomotives and trailers, and railway .trucks	Balancing the number of tippers	۲	Thirteenth
=	=	The stands include (their types and benefits, along with productivity calculations) and a .scientific film is shown	Terraces	۲	fourteenth
=	=	Types of skimmers, their benefits, and productivity calculations, with a scientific .film shown	Skimmers	۲	Fifteenth
=	=	Sipper productivity: Use the scraper performance chart to .calculate productivity	Using the skimmer performance	۲	sixteen

			chart to calculate .productivity		
=	=	A scientific visit to a business site with a scientific film .showing	A scientific visit to one of the business sites	۲	seventeenth
=	=	Soil compaction machines, their importance includes their types and places of use, along with .showing a scientific film	Soil compacting machines	۲	eighteenth
=	=	Complementing the forging machines and calculating productivity, pressure bulb .theory for distributing weights	Ironing machines and productivity calculations	۲	nineteenth
=	=	Complementing the ironing machines with vibrating rollers, calculating the productivity of the rollers	Vibrating rollers, calculating the productivity of rollers	۲	The twentieth
=	=	Material mixing equipment for concrete works with a scientific film showing	Material mixing equipment for concrete works	۲	۲۱st
=	=	Concrete compacting and polishing transportation equipment	Concrete compacting and polishing transportation equipment	۲	XXII

=	=	Asphalt production plants, .their types and specifications	Asphalt production .plants	۲	twenty third
=	=	Specifications of asphalt spreaders, spreader speed, types of spreaders, with a .scientific film shown	Specifications of asphalt spreaders	۲	twenty fourth
=	=	Scientific visit to asphalt .production plants	Scientific visit to asphalt production .plants	۲	۲۰th
=	=	Trench types, calculating production rates and showing a .scientific film	Trenches	۲	twenty-sixth
=	=	Tunnels, their importance and types, with a scientific film .shown	Tunnels	۲	And the twenty-seventh
=	=	Digging tunnels with mechanical excavators, ventilating the tunnels and .showing a scientific film	Tunnels with mechanical excavators	۴	Twenty-eighth
=	=	Conveyor belts, calculation of transportation costs with conveyor belts, parts of conveyor belts	Conveyor belts	۲	XXIX
=	=	The use of modern control systems in construction machines, with the presentation of a special scientific film about	Modern control systems in construction machines	۲	thirty

	.them			
Course evaluation-١١.٩٢				
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc				
Resources of learning and teaching-١٢.٩٣				
Website of the Technical Institute - Najaf	Required textbooks (methodology, if any)			
Construction planning methods - ١ and equipment (Part One) Translated by Dr. Muhammad Ayoub Sabri Al-Ezzi Guessing: by Medhat Fadil - ٢	Main references (sources)			
	Recommended supporting books and references (...scientific journals, reports)			
Internet sites	Electronic references, Internet sites			

Course Description Form(10)

	Course Name.٩٤
Surveying - Phase Two	
	Course Code.٩٥
-	
	Semester/year.٩٦
annual	
	Date this description was prepared.٩٧
٢٠٢٤ ٢ ١٩	
	Available attendance forms.٩٨

Theoretical - practical					
Number of study hours (total)/number of units (total). ١٩					
٦ / ٣					
Name of the course administrator (if more than one name is mentioned) ١٠٠					
: Amil- Name: Munqith Sadiq / Al					
objectives Course ١٠١					
Teaching and learning strategies ١٠٢					
The strategy					
Course structure ١٠٣					
Study plan (suggested)					
Second academic year					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week

Oral +exams Editorial	Lecture + practical examples + laboratory	Identifying the theodolite device/its parts, uses, types, installing the device, reading the horizontal and vertical .directions of the various types	Getting to know the theodolite .device	۲	the first
=	=	Checking and adjusting the theodolite device for all types of vertical and horizontal examinations, then finding the .device's constant	Checking and adjusting the theodolite device	۲	the second
=	=	Methods for measuring horizontal angles with a .theodolite device	Methods of measuring horizontal angles	۴	the third
=	=	Polygons, types of polygons, .their purposes, and uses	ribbing		the fourth
=	=	Measure and correct the interior horizontal angles of a .closed polygon	Measure horizontal angles	۲	Fifth
=	=	Methods of measuring the horizontal distances of the sides .of a polygon	Methods of measuring the horizontal distances of the sides of a	۲	VI

			.polygon		
=	=	Drawing closed and open .polygons	Drawing closed and open .polygons	۲	Seventh
=	=	Raising beams for polygons using a theodolite device and .tape	Raising beams for polygons	۲	VIII
=	=	Calculating the horizontal components and vertical components of the sides of a polygon and calculating the .coordinates	Calculate horizontal components and vertical components	۲	Ninth
=	=	Calculating the horizontal components, vertical components, and coordinates of .an open polygon	Calculate horizontal components and vertical components	۲	The tenth
=	=	Methods for measuring vertical .angles with a theodolite device	Methods of measuring vertical angles	۲	eleventh
=	=	Finding the height of a building (target) that can be reached using the theodolite device	Find the height of a building	۲	twelveth
=	=	Finding the height of a building (target) that cannot be reached using a theodolite device		۲	Thirteenth

=	=	Finding the height of a building (target) by measuring three angles of elevation or depression using a theodolite device	Find the height of a building	۲	fourteenth
=	=	Measuring the length of an inaccessible building - measuring the horizontal angle .between two walls	Measuring the length of an inaccessible building	۲	Fifteenth
=	=	Curves/types	Curves	۲	sixteen
=	=	Horizontal curves (elements of a simple circular curve) and equations used in designing a .simple circular curve	Horizontal curves	۲	seventeenth
=	=	Methods of projecting horizontal curves / method of columns based on tangents (Baker method) - method of columns located on the chord (offsets) - method of dividing the chords - method of deviation angles	Methods of projecting horizontal curves	۲	eighteen
=	=	Projecting curves using two .theodolite devices	Projection of curves	۲	nineteenth

=	=	Drawing a road with its .horizontal curves	Draw a road with its horizontal curves	۲	The twentieth
=	=	The main convex and concave curves/their elements/calculating the length of the vertical curve	Convex and concave principal curves	۲	۲۱st
=	=	Calculations related to the .vertical curve	Calculations related to the vertical curve	۲	XXII
=	=	Triangulation, its purposes, use, choosing triangulation points, .triangulation networks	Triangulation	۲	twenty third
=	=	Measure the base line for triangulation and make fortifications for measuring .with tape	Measure the base line for triangulation	۲	twenty fourth
=	=	Measuring the horizontal angles of the triangulation network, making calculations and making the necessary .fortifications	Measuring the horizontal angles of a triangulation grid	۲	۲۵th
=	=	Tachymetric survey, types of .tachymeter devices	Tachymetric area	۲	twenty-sixth

=	=	Learn about modern electronic measuring devices and how to use them to measure horizontal .and vertical distances	Identify modern electronic measuring devices	٢	And the twenty-seventh
=	=	A general project about constructing a road or drainage channel, calculating the dirt needed to complete the project along with its horizontal and .vertical curves	A general project on constructing a road	٤	Twenty-eighth
=	=	Introduction to the comprehensive station device. Using the total station device to measure the lengths of the sides of a polygon, interior angles, .and coordinates	Introduction to the comprehensive station device	٢	Twenty-nine and thirti-nine
Course evaluation-١١ .١٠٤					
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc					
Resources of learning and teaching-١٢ .١٠٥					
Website of the Technical Institute - Najaf			Required textbooks (methodology, if any)		
			Surveying methodology book		
			Recommended supporting books and references (...scientific journals, reports)		
Internet sites			Electronic references, Internet sites		

