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

Academic Program and Course Description Guide for Department of Civil Techniques

2025

Introduction:

The Civil Techniques Department aims to prepare technicians and technologists with the skills and knowledge required to work in civil engineering projects, including construction, roads, water and sewage networks, and surveying, with a strong emphasis on practical application. The duration of study is two academic years (technical), after which the student is awarded a Technical Diploma in Civil Techniques. The department was established in 1973, coinciding with the founding of the Institute of Technology in Basra. It includes several scientific laboratories specialized in construction and building, as well as a computer lab.

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.

Academic Program Description Form

University Name: Southern Technical University
Institute: Basra Technological Technical Institute
Scientific Department: Department of Civil Techniques
Academic or Professional Program Name: Diploma…Civil Techniques/ Building and Construction Branch.
Final Certificate Name: Diploma in Civil Techniques
Academic System: Semester
Description Preparation Date:1/6/2025
File Completion Date: 1/6/2025

Signature:
Head of Department Name:Dr. Hanadi Abdulrida Lateef
Date:

Signature:
Scientific Associate Name: Dr. Abdul Nasser Abdul Jabbar Abbood
Date: 24/6/2025

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department: Anwar Abood
Date: 24-6-2025
Signature:

Approval of the Dean
Assist. Prof. Dr. Diyah Kammel Shary

1. Program Vision

Developing a modern technical education program aligned with scientific advancements in construction and building, aimed at establishing a distinctive and high-quality model that ensures the effective preparation of mid-level technical personnel, enabling them to successfully contribute to the implementation and progress of engineering projects.

2. Program Mission

Working toward the preparation of a specialized technical workforce in the field of construction and building, equipped with scientific knowledge, practical skills, and professional ethics—aligned with the spirit of the times and the rapid advancements in the construction sector, while taking into account the needs and demands of the labor market.

3. Program Objectives

1. Preparing specialized and qualified technical personnel to serve the community through participation in:
- Preparing and reading engineering drawings.
- Calculating quantities and measurements for civil works.
- Conducting laboratory and field tests.
- Executing various civil works while considering the use of modern and advanced construction materials and methods to provide maximum benefit to the labor market.
- Analyzing problems, if any, discussing them, and finding effective solutions using accumulated knowledge.

2. Emphasizing the educational and ethical aspects of the student, and instilling a spirit of dedication, tolerance, commitment, and service to the nation.
3. Focusing on intellectual and cultural development through exposure to the experiences of other countries in the field of construction and building.

4. Program Accreditation

There is none

5. **Other external influences**
Field visits to work projects within the geographical area, with consideration given to selecting projects that incorporate modern construction methods in terms of building techniques, structural elements, and materials used.

6. **Program Structure**				
Program Structure	**Number of Courses**	**Credit hours**	**Percentage**	**Reviews***
Institution Requirements	**17 first stage** **21 second stage**	**17 first stage** **21 second stage**	**40%** **60%**	**Project is Annual**
Summer Training	**Two months for First Stage**			
Other				

7. **Program Description**				
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			theoretical	**practical**
2024-2025 **1st course** **First stage**	C1-1	Construction Materials/1	2	2
	C1-2	Engineering Mechanics/2	2	1
	C1-3	Surveying (1)/1	2	2
	C1-4	Concrete Materials /1	1	2
	C1-5	Mathematics/1	3	–
	C1-6	Engineering Drawing (board)	-	6
	C1-7	Computer Fundamentals (1)	–	2
	C1-8	Workshops	–	3
	C1-9	Human Rights and Democracy	2	–
Sum.			12	18
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			theoretical	**practical**
2024-2025 **2nd course** **First stage**	C1-1	Construction Materials/2	2	2
	C1-2	Engineering Mechanics/2	2	1
	C1-3	Surveying (1)/2	2	2
	C1-4	Concrete Materials/2	1	2
	C1-5	Mathematics/2	3	–

	C1-6	Engineering Drawing by Autocad	-	6
	C1-7	English Language	2	-
	C1-8	Arabic Language	2	-
Sum.			14	13
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			theoretical	**practical**
2024-2025 **1st course** **Second stage**	C2-1	Concrete Technology/1	2	2
	C2 -2	Construction Technology /1	-	4
	C2 -3	Soil Mechanics/1	2	2
	C2 -4	Civil Drawing/1	-	6
	C2 -5	Surveying2/1	1	2
	C2 -6	Quantitative Survey/1	1	2
	C2 -7	Building and Factory Construction /1	2	-
	C2 -8	Construction Machine	2	-
	C2 -9	English Language 2	2	-
	C2-10	Graduation Project	-	2
	C2-11	The Crimes of the Baath regime in Iraq	2	-
Sum.			14	20
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			theoretical	**practical**
2024-2025 **2nd course** **Second stage**	C2-1	Concrete Technology/2	2	2
	C2 -2	Construction Technology /2	-	4
	C2 -3	Soil Mechanics/2	2	2
	C2 -4	Civil Drawing/2	-	6
	C2 -5	Surveying2/2	1	2
	C2 -6	Quantitative Survey/2	1	2
	C2 -7	Building and Factory Construction /2	2	-
	C2 -8	Construction Machine/2	2	-
	C2 -9	Computer Fundamentals 2	2	-
	C2-10	Graduation Project	-	2
Sum.			10	22

8. Expected learning outcomes of the program

Knowledge

1. **Enable students to acquire knowledge, understanding, principles, theories, and fundamentals in civil engineering disciplines.**
2. **Enable students to understand advanced scientific and practical topics in modern civil technical fields.**
3. **Introduce students to the most important computer software used in civil engineering disciplines.**
4. **Enable students to understand the operating principles of laboratory equipment used for testing and evaluating construction materials and the quality of completed structures, as well as how to operate such equipment and perform related tests.**

Skills

1. **Ability to read and prepare structural engineering drawings.**
2. **Ability to perform laboratory experiments in accordance with standard technical specifications.**
3. **Ability to write and formulate technical engineering reports on test results, interpret findings, and assess their implications.**
4. **Develop students' abilities to participate in problem analysis and identify appropriate solutions.**
5. **Enhance communication skills so that graduates can serve as a link between workers and senior engineering staff.**

Ethics

1. **Foster a spirit of cooperation and teamwork.**
2. **Emphasize professional ethics and appropriate methods of conduct.**

9. Teaching and Learning Strategies

- **Explanation and clarification through lectures.**
- **Presentation of scientific materials using various audiovisual tools.**
- **Self-learning through homework assignments and mini-projects.**
- **Laboratory work.**
- **Graduation projects.**
- **Scientific field visits.**

10. Evaluation methods

Teaching Methods

1. Theoretical lectures.
2. Scientific discussions.

3. Group work.
4. Practical sessions in engineering laboratories.
5. Scientific seminars where students present the latest developments in their field.
6. Field visits to real-world work sites to observe key challenges and applications in civil engineering disciplines.
7. Graduation projects for final-year students.

Assessment Methods

1. Monthly or semester written examinations.
2. Quizzes (short tests).
3. Writing scientific and practical reports.
4. Reports on key engineering observations from field visits.
5. Scientific seminars.
6. Homework assignments.
7. Graduation project evaluation by dedicated discussion committees.

11.Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Lecturer	Civil Engineering	Structures			2	
Lecturer	Civil Engineering	Soil mechanics and foundation engineering			1	
Assistant Lecturer	Civil Engineering	Structures			5	
Assistant Lecturer	Civil Engineering	Construction Materials			2	
Assistant Lecturer	Civil Engineering	Infrastructures			1	
Assistant Lecturer	Civil Engineering	Soil mechanics and foundation engineering			3	

Assistant Lecturer	Water Resources Engineering	Hydraulic			1	
Sum.					15	

Professional Development

Mentoring new faculty members

1. **Introducing new faculty members to the department's operations and academic program, and involving them in the department's scientific committees.**
2. **Ensuring the implementation of the department's program by keeping faculty informed of ongoing developments.**

Professional development of faculty members

1. **Conducting student questionnaire at the end of each semester on various topics related to personal development.**
2. **Conducting faculty questionnaire at the end of each semester to gather input on the best methods for course and instructional development.**
3. **Organizing developmental and training workshops to deliver up-to-date global knowledge in teaching and curriculum design.**
4. **Coordinating with the Quality Assurance Unit at the institute and university to monitor and improve the implementation of the academic program within the department.**

12.Acceptance Criterion

First: Admission Requirements for the Institute

1. **Admission of students is based on the regulations of the Ministry of Higher Education and Scientific Research (central admission).**
2. **The applicant must successfully pass any special examination or personal interview deemed necessary by the institute or university council.**
3. **The applicant must be medically fit for the chosen specialization.**

Second: Admission Requirements for the Academic Department

1. **Student selection is based on their preferences, ranked in order of priority.**
2. **The student's overall score in the general secondary education certificate.**
3. **The student's score in the subject relevant to the desired department.**
4. **The department's enrollment capacity.**

13.**The most important sources of information about the program**
The university's official website, the institute's website, and the university guide.

14.Program Development Plan
Curriculum and Infrastructure Development 1. **Updating the academic curricula in alignment with advancements in the field of specialization.** 2. **Adopting modern specialized software applications.** 3. **Continuously upgrading laboratories to keep pace with the development of equipment, techniques, and tools in the field of construction.**

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	**Course Code**	**Course Name**	**Basic or optional**	**Knowledge**				**Skills**				**Ethics**			
				A1	**A2**	**A3**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**
2024-2025 First stage	C1-1	Construction Materials/1	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C1-2	Engineering Mechanics/2	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C1-3	Surveying (1)/1	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C1-4	Concrete Materials /1	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C1-5	Mathematics/1	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C1-6	Engineering Drawing (board)	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C1-7	Computer Fundamentals (1)	**Helper**	√	√	√		√	√	√		√	√	√	
	C1-8	Workshops	**Helper**	√	√	√		√	√	√		√	√	√	
	C1-9	Human Rights and Democracy	**General**	√	√	√		√	√	√		√	√	√	

	C1-10	English Language	**General**	√	√	√		√	√	√		√	√	√	
	C1-11	Arabic Language	**General**	√	√	√		√	√	√		√	√	√	
2024-2025 Second stage	C2-1	Concrete Technology/1	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C2 -2	Construction Technology /1	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C2 -3	Soil Mechanics/1	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C2 -4	Civil Drawing/1	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C2 -5	Surveying2/1	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C2 -6	Quantitative Survey/1	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C2 -7	Building and Factory Construction /1	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C2 -8	Construction Machine	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C2 -9	English Language 2	**Helper**	√	√	√		√	√	√		√	√	√	
	C2-10	Computer Fundamentals	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C2-11	Graduation Project	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	C2-12	The Crimes of the Baath regime in Iraq	**Helper**	√	√	√		√	√	√		√	√	√	

Course Description for First Stage 2024-2025

1. Course Name:
Construction Materials / 1
2. Course Code:
C 1 – 1
3. Semester / Year:
semester / first year
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
120 hours per year (2 theoretical subjects + 2 practical subjects over 30 weeks) / units (4 units per semester)
7. Course administrator's name (mention all, if more than one name)
Name: Mohammed Khaleel Ismail Email: mohammed.khaleel@stu.edu.iq
8. Course Objectives
Course Objectives: Teaching the student about the properties of construction materials and their production methods, as well as the modern alternatives currently available and the new production techniques. This will qualify the student to perform standard tests to determine the compliance of construction materials with specifications and assess their suitability for use in constructions, ensuring strength, safety, and economy.
9. Teaching and Learning Strategies

Strategy	1. Cognitive strategies. 2. Active learning strategies. 3. Cooperative learning strategies. 4. Discussion strategy

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
Semester 1					
First	4 hours (2 Theoretical +2	1 – Providing the student with comprehensive	Theoretically, a general description of the physical properties and standard specifications	Theoretical and practical lectures	Written exams and discussions and reports

	practical)	knowledge of the types building materials, their properties, methods of production, their uses. 2 – The ability to classify materials, conduct standard laboratory tests, determine their suitability how well they conform to them intended purpose.	of construction materials and their uses in buildings; practically, getting to know the laboratory and its basic equipment and balances		
Second			Clay bricks and methods of their production and practical tests of bricks – density, specific weight		
Third			Properties, uses, and specifications of clay brick. Practical tests of the brick - absorption, 1/2 hour, 24 hours, efflorescence		
Fourth			Tests for clay bricks and practically the tests for bricks – compressive strength tests for bricks – soluble salts tests		
Fifth			Lime bricks, glass bricks, properties and manufacturing methods. Practically, tests for glass bricks and lime bricks include density, absorption, and compressive strength		
Sixth			Concrete blocks (properties and manufacturing methods along with explaining the difference between the two) and practically testing concrete blocks, density absorption, soluble salts.		
Seventh			The properties and methods of making thermosetting, practical tests of thermosetting, density, absorption, and compressive strength.		
Eighth			Visit with a discussion of the visit to the brick factory		
Ninth			Building stone - its classification and types.		
Tenth			Uses of building stone according to its types		
Eleventh			Binders and their types along with tests for binders that are moisture resistant: gypsum, standard consistency, setting time.		
Twelfth			Moisture-resistant materials (cement mortar - lime) the method of making lime, its properties, along with testing the tensile strength of plaster.		
Thirteenth			The binding materials that are resistant to moisture (plaster) properties and production with the strength		

			of plaster.		
Fourteenth			Gypsum products -their types and properties, secondary ceiling materials and their types, along with the smoothness test for gypsum products and plaster.		
Fifteenth			Materials for ceramic tiles and their types, along with standard tests for ceramics.		
Semester 2					
First	4 hours (2 hours theory + 2 hours practical	1 – Providing the student with comprehensive knowledge of the types of building materials, their properties, methods of production, and their uses. 2 – The ability to classify materials, conduct standard laboratory tests, and determine their suitability and how well they conform to their intended purpose.	Methods of manufacturing - application method - joints with standard tests for concrete slabs and pavements, including salts and absorption.	Theoretical and practical lectures	Written exams and discussions and reports
Second			Moisture-resistant materials, their types and reasons for use, along with pressure testing and the fracture criteria for ceramic tiles and concrete slabs.		
Third			High Moisture Barrier Materials: Their Types, Manufacturing Methods, Applications, and Standard Specifications for Testing Moisture Barrier Materials.		
Fourth			The semi-flexible and flexible moisture-resistant materials, their types and uses, methods of manufacturing them, and moisture-resistant liquid materials.		
Fifth			Epoxy: its definition, properties, types, applications, and standard tests for adhesive materials (epoxy).		
Sixth			Wood - its origin, types used, and methods of use along with vertical and parallel pressure testing of wood fibers.		
Seventh			Methods of drying wood and wood defects with wood split testing and bend testing.		
Eighth			Metals (ferrous and non-ferrous materials) and their uses in buildings.		
Ninth			Iron: Its methods of production, types, and uses along with tensile testing of iron.		
Tenth			Iron: Its methods of production, types, and uses along with tensile testing of iron.		
Eleventh			Thermal insulation materials with standard specifications for testing thermal insulating materials.		

Twelfth			Sound insulation materials with standard specifications for testing soundproofing materials.		
Thirteenth			The paints with the standard specifications for testing materials for paints		
Fourteenth			The glass with standard glass Tests		
Fifteenth			Asphalt properties of asphalt materials with the penetration test for asphalt - cement and the softness test using the Ring and Ball Test.		

11. Course Evaluation	
The distribution of grades is as follows: 50 points for continuous assessment (20 theoretical + 20 practical + 10 for year-round work). 50 points for the final exam (40 theoretical + 10 practical).	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Construction of buildings / Artin Levin and Zuheir Sako. Construction materials , Jalal Bashir and Said Abdul Ali. Unified building code for parts one and two / Imad Darwish.
Recommended books and references (scientific journals, reports…)	Access to many scientific journals published by various universities in Iraq, in addition to visits to scientific libraries and the institute's library.
Electronic References, Websites	

1. Course Name:
Engineering Mechanics
2. Course Code:
C1-2
3. Semester / Year:
Semester / 1st Year:
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
90 hours per year (2 theoretical + 1 practical over 30 weeks) / 6 units (3 units per semester)
7. Course administrator's name (mention all, if more than one name)
Name: Aliaa Ghalib Salih Email: aliaa.g.salih.u@stu.edu.iq

8. Course Objectives	
Course Objectives	Teaching students how to analyze structures and find the resultant forces, stresses, and strains generated in their components as a result of applying external loads, and the relationship of this to the properties of the materials that make up the structural member, and designing engineering structures that meet safety and economic requirements.

9. Teaching and Learning Strategies	
Strategy	1. Cognitive strategies. 2. Active learning strategies. 3. Cooperative learning strategies. 4. Discussion strategies.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st semester					

First	3 hours (2 theoretical + 1 practical)	1-The student learns the basic principles of engineering mechanics. 2- Acquire basic skills in analyzing structural elements and finding the resultant forces and stresses to be the basis for designing structural structures.	Definition of mechanics, general review of physics topics related to material topics, trigonometric ratios of angles, vector and non-vector quantities.	Theoretical and practical lectures	Exams and discussions reports.
Second	3 hours (2 theoretical + 1 practical)		Analysis and composition of forces, force triangle law and force polygon.	Theoretical and practical lectures	Exams and discussions reports.
Third	3 hours (2 theoretical + 1 practical)		applications on the subject of analysis force.	Theoretical and practical lectures	Exams and discussions reports.
Fourth	3 hours (2 theoretical + 1 practical)		Moment of forces	Theoretical and practical lectures	Exams and discussions reports.
Fifth	3 hours (2 theoretical + 1 practical)		Couples	Theoretical and practical lectures	Exams and discussions reports.
Sixth	3 hours (2 theoretical + 1 practical)		Resultant of convergent, non-convergent and parallel forces.	Theoretical and practical lectures	Exams and discussions reports.
Seventh	3 hours (2 theoretical + 1 practical)		Resultant of convergent, non-convergent and parallel forces.	Theoretical and practical lectures	Exams and discussions reports.
Eighth	3 hours (2 theoretical + 1 practical)		Distributed loads	Theoretical and practical lectures	Exams and discussions reports.
Ninth	3 hours (2 theoretical + 1 practical)		Equilibrium, drawing free body diagram, equilibrium equations equilibrium in the case of convergent, non-convergent, and parallel forces.	Theoretical and practical lectures	Exams and discussions reports.

Tenth	3 hours (2 theoretical + 1 practical)		Equilibrium, drawing free body diagram, equilibrium equations equilibrium in the case of convergent, non-convergent, and parallel forces.	Theoretical and practical lectures	Exams and discussions reports.
Eleventh	3 hours (2 theoretical + 1 practical)		Types of beams and Supports	Theoretical and practical lectures	Exams and discussions reports.
Twelfth	3 hours (2 theoretical + 1 practical)		Analysis of trusses by method of joints	Theoretical and practical lectures	Exams and discussions reports.
Thirteenth	3 hours (2 theoretical + 1 practical)		Analysis of trusses method of sections	Theoretical and practical lectures	Exams and discussions reports.
Fourteenth	3 hours (2 theoretical + 1 practical)		Friction, friction Theory	Theoretical and practical lectures	Exams and discussions reports.
Fifteenth	3 hours (2 theoretical + 1 practical)		Laws of friction, types of friction, applications	Theoretical and practical lectures	Exams and discussions reports.
2nd semester					
First	3 hours (2 theoretical + 1 practical)		Introduction about strength of materials, Centroids of simple shapes.	Theoretical and practical lectures	Exams and discussions reports.
Second	3 hours (2 theoretical + 1 practical)		Centroids of Complex Shapes.	Theoretical and practical lectures	Exams and discussions reports.

Third	3 hours (2 theoretical + 1 practical)		Moment of inertia For the simple Shapes.	Theoretical and practical lectures	Exams and discussions reports.
Fourth	3 hours (2 theoretical + 1 practical)		Moment of inertia For the complex Shapes.	Theoretical and practical lectures	Exams and discussions reports.
Fifth	3 hours (2 theoretical + 1 practical)		Strength of materials, definite of stress, types of stresses factor of safety.	Theoretical and practical lectures	Exams and discussions reports.
Sixth	3 hours (2 theoretical + 1 practical)		Stresses applications	Theoretical and practical lectures	Exams and discussions reports.
Seventh	3 hours (2 theoretical + 1 practical)		hook 's law, relation between stress and strain	Theoretical and practical lectures	Exams and discussions reports.
Eighth	3 hours (2 theoretical + 1 practical)		Lateral strain, poison ratio, applications of relation between stress and strain	Theoretical and practical lectures	Exams and discussions reports.
Ninth	3 hours (2 theoretical + 1 practical)		Bending stress for beams Shear force and bending moment diagram.	Theoretical and practical lectures	Exams and discussions reports.
Tenth	3 hours (2 theoretical + 1 practical)		applications of Bending stress for beams Shear force and bending moment diagrams	Theoretical and practical lectures	Exams and discussions reports.

Eleventh	3 hours (2 theoretical + 1 practical)		Bending moment for beams.	Theoretical and practical lectures	Exams and discussions reports.
Twelfth	3 hours (2 theoretical + 1 practical)		Applications of Bending moment for beams	Theoretical and practical lectures	Exams and discussions reports.
Thirteenth	3 hours (2 theoretical + 1 practical)		Shear stress and applications.	Theoretical and practical lectures	Exams and discussions reports.
Fourteenth	3 hours (2 theoretical + 1 practical)		Beams which making from two materials and their applications	Theoretical and practical lectures	Exams and discussions reports.
Fifteenth	3 hours (2 theoretical + 1 practical)		Beams which making from two materials and their applications	Theoretical and practical lectures	Exams and discussions reports.

11. Course Evaluation

Distribution as follows:40 degree for striving (30 theoretical + 10 practical year).60 marks for final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Engineering Mechanics - HKD Engineering Mechanics - Singer Maryam Engineering Mechanics – Hubler
Recommended books and references (scientific journals, reports…)	Reviewing many scientific journals issued by various Iraqi universities, in addition to visits to scientific libraries and the institute's library
Electronic References, Website	

1. Course Name:
Surveying(1)
2. Course Code:
C1-3
3. Semester / Year:
Semester / 1st Year:
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
120 hours per year (2 theoretical + 2 practical over 30 weeks) / 8 units (4 units per semester)
7. Course administrator's name (mention all, if more than one name)
Name: Duaa Khaled Nasser Email: duaa.kh@stu.edu.iq

8. Course Objectives	
Course Objectives	Teaching students the basics of surveying, its use for civil engineering purposes, and the calculations related to it. Preparing students to use various surveying equipment for civil engineering work, creating maps for projects, and enabling them to plan, supervise, and implement these projects.

9. Teaching and Learning Strategies	
Strategy	1. Cognitive Strategies. 2. Active Learning Strategies. 3. Cooperative Learning Strategies. 4. Discussion Strategy.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st semester					

First	4 hours (2 theoretical + 2 practical)	1-Acquiring basic knowledge in surveying and familiarization with various surveying devices and tools. 2- The ability to Carry outfield surveying tasks, produce and implement maps, and perform the necessary surveying calculations for the work.	Definition of surveying - its fields - its divisions - its uses - units of measure	Theoretical and practical lectures	Exams and discussions reports.
Second	4 hours (2 theoretical + 2 practical)		Measurement of horizontal distances on plane land - Measurement of horizontal distance on land of irregular slope.	Theoretical and practical lectures	Exams and discussions reports.
Third	4 hours (2 theoretical + 2 practical)		Measuring horizontal distances on sloping terrain (regular sloping) (If you know the difference in elevation, the degree of slope of the land, and the angle of slope of the land).	Theoretical and practical lectures	Exams and discussions reports.
Fourth	4 hours (2 theoretical + 2 practical)		Set up and shoot down columns - overcome obstacles which abstract the measurement of horizontal distance.	Theoretical and practical lectures	Exams and discussions reports.
Fifth	4 hours (2 theoretical + 2 practical)		Tape surveying (filling cases during lifting).	Theoretical and practical lectures	Exams and discussions reports.
Sixth	4 hours (2 theoretical + 2 practical)		The flat plate - its parts - Methods of lifting with the flat plate, (radiation method)	Theoretical and practical lectures	Exams and discussions reports.

Seventh	4 hours (2 theoretical + 2 practical)		The front cross-section lifting method , the rotation method (lock error and how to correct it) – Advantages and disadvantages of flat plate surveying.	Theoretical and practical lectures	Exams and discussions reports.
Eighth	4 hours (2 theoretical + 2 practical)		Leveling - related definitions and purposes.	Theoretical and practical lectures	Exams and discussions reports.
Ninth	4 hours (2 theoretical + 2 practical)		How to calculate point levels using the level plane method and solve examples.	Theoretical and practical lectures	Exams and discussions reports.
Tenth	4 hours (2 theoretical + 2 practical)		How to calculate point levels using the rise and fall method and solve examples.	Theoretical and practical lectures	Exams and discussions reports.
Eleventh	4 hours (2 theoretical + 2 practical)		Double leveling – The effect of the Earth's sphericity and light refractions leveling work	Theoretical and practical lectures	Exams and discussions reports.
Twelfth	4 hours (2 theoretical + 2 practical)		Inverted leveling - Reciprocal (inverse) leveling with solved examples.	Theoretical and practical lectures	Exams and discussions reports.
Thirteenth	4 hours (2 theoretical + 2 practical)		sources of errors in leveling work – Degree of accuracy - Amount of permissible error.	Theoretical and practical lectures	Exams and discussions reports.
Fourteenth	4 hours (2 theoretical + 2 practical)		Longitudinal sections - Drawing a longitudinal section Solving examples.	Theoretical and practical lectures	Exams and discussions reports.

Fifteenth	4 hours (2 theoretical + 2 practical)		Cross sections – finding the levels of the cross-section points – drawing the cross-section.	Theoretical and practical lectures	Exams and discussions reports.
2nd semester					
First	4 hours (2 theoretical + 2 practical)		construction line - Calculating the slope of the construction line - Finding the levels of construction line points if the slop known - (drawing the proposed line for a project).	Theoretical and practical lectures	Exams and discussions reports.
Second	4 hours (2 theoretical + 2 practical)		Calculating land area and cross-sections using demarcation methods, mathematic laws, and coordinates	Theoretical and practical lectures	Exams and discussions reports.
Third	4 hours (2 theoretical + 2 practical)		Calculating the volumes of earth for excavation and backfilling.	Theoretical and practical lectures	Exams and discussions reports.
Fourth	4 hours (2 theoretical + 2 practical)		Checking and adjusting the leveling device - Balancing the leveling lines (leveling balance).	Theoretical and practical lectures	Exams and discussions reports.
Fifth	4 hours (2 theoretical + 2 practical)		Contour lines - Their properties - Contour interval - Factors on which the contour interval depends - Contour clearance - Determining contour lines (direct method).	Theoretical and practical lectures	Exams and discussions reports.
Sixth	4 hours (2 theoretical + 2 practical)		Methods for determining contour lines (indirect methods), the section method - the control point method - the squares method (grid leveling).	Theoretical and practical lectures	Exams and discussions reports.

Seventh	4 hours (2 theoretical + 2 practical)		Drawing contour line (calculating method and dividing the difference method).	Theoretical and practical lectures	Exams and discussions reports.
Eighth	4 hours (2 theoretical + 2 practical)		Slopes - Calculating volumes for tanks (cistern) - Drawing sections from contour lines.	Theoretical and practical lectures	Exams and discussions reports.
Ninth	4 hours (2 theoretical + 2 practical)		Calculating areas using a planimeter.	Theoretical and practical lectures	Exams and discussions reports.
Tenth	4 hours (2 theoretical + 2 practical)		Deviations - Circular Deviation - Abbreviation – Local Gravity.	Theoretical and practical lectures	Exams and discussions reports.
Eleventh	4 hours (2 theoretical + 2 practical)		Surveying (elevation) using a compass and practical exercises on how to perform survey calculations using a compass.	Theoretical and practical lectures	Exams and discussions reports.
Twelfth	4 hours (2 theoretical + 2 practical)		Curves - Horizontal curves – Types (Circular and stepped) – Elements of a simple circular curve - and drawing each type.	Theoretical and practical lectures	Exams and discussions reports.
Thirteenth	4 hours (2 theoretical + 2 practical)		Design of a simple circular curve (equations related to that) - Drawing a simple circular curve	Theoretical and practical lectures	Exams and discussions reports.
Fourteenth	4 hours (2 theoretical + 2 practical)		Vertical curves – Design of a vertical curve.	Theoretical and practical lectures	Exams and discussions reports.

Fifteenth	4 hours (2 theoretical + 2 practical)		Construction line - Calculating the slope the construction line Finding the levels of construction line points if the slope is known - (Drawing the proposed line for project).	Theoretical and practical lectures	Exams and discussions reports.

11. Course Evaluation

Distribution as follows:50 degree for striving (20 theoretical + 20 practical + 10 year's works). 50 marks for final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Surveying Engineering / Abbas Zidane Khalaf Principles of Surveying Engineering / Juma Daoud Engineering and cadastral survey / Ziad Abdul Jabbar Al-Bakr Surveying engineering/Moffit FH
Recommended books and references (scientific journals, reports…)	Iraqi Journal of Civil Engineering Egyptian Survey Magazine.
Electronic References, Website	Many websites for surveying and geomatics engineering

1.Course Name:
Concrete materials / 1
2.Course Code:
C 1 – 4
3. Semester / Year:
semester / first year
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
90 hours per year (1 theoretical + 2 practical over 30 weeks) / 6 units (3 un for each semester)
7. Course administrator's name (mention all, if more than one name)
Name: M.M. Ali Addi Hilal Email: ali.helal@stu.edu.iq
8. Course Objectives
Course Objectives teaching the student to the materials that make up concrete and mastering physical, mechanical, and chemical properties of these materials and their effects on concrete. practical part includes the necessary tests for these materials. 1. Teaching and learning strategies.
9. Teaching and Learning Strategies

Strategy	1. Cognitive strategies. 2. Active learning strategies. 3. Cooperative learning strategies. 4. Discussion strategy

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
Semester 1					
First	3 hours (1 theoretical + 2 practical)	Teaching the student about the materials involved in concrete work, properties, and manufacturing methods.	Theoretically, a general description of the physical properties and standard	Theoretical practical lectures	Written exams and discussions and reports

			specifications of concrete materials and the uses in buildings, and practically getting to know the laboratory and its basic equipment and scales.		
Second	3 hours (1 theoretical + 2 practical)		Types of cement, their properties, manufacturing methods, and how to test the consistency of white cement and ordinary Portland cement.	Theoretical practical lectures	Written exams and discussions and reports
Third	3 hours (1 theoretical + 2 practical)		Properties, uses, and specification cement and practically determining the initial and final setting times of Portland cement and quick-setting cement and comparing them with the standard specification.	Theoretical practical lectures	Written exams and discussions and reports
Fourth	3 hours (1 theoretical + 2 practical)		The tests for the tensile and compressive strength of cement mortar and how to achieve high resistance using additives.	Theoretical practical lectures	Written exams and discussions and reports
Fifth	3 hours (1 theoretical + 2 practical)		The fineness of the cement and how it affects the hydration process of the cement paste, as well as how to achieve fineness within standard specifications.	Theoretical practical lectures	Written exams and discussions and reports
Sixth	3 hours (1 theoretical + 2 practical)		Definition of cement stability, reason for cement expansion, expansion limits, and	Theoretical practical lectures	Written exams and discussions and reports

			measurement methods using two methods: Le Chatelier and autoclave.		
Seventh	3 hours (1 theoretical + 2 practical)		The different methods for taking standard samples of coarse and fine aggregates and distinguishing between coarse aggregate methods and fine aggregate methods.	Theoretical practical lectures	Written exams and discussions and reports
Eighth	3 hours (1 theoretical + 2 practical)		How to calculate moisture content coarse and fine aggregates and it impact on the concrete mix	Theoretical practical lectures	Written exams and discussions and reports
Ninth	3 hours (1 theoretical + 2 practical)		The density of packed and unpacked materials and ho to conduct tests.	Theoretical practical lectures	Written exams and discussions and reports
Tenth	3 hours (1 theoretical + 2 practical)		Inflation in sand, how to calculate its effect on concrete, measuring the abrasion resistance of coarse aggregate and calculating the rate of wear.	Theoretical practical lectures	Written exams and discussions and reports
Eleventh	3 hours (1 theoretical + 2 practical)		The gradation of coarse aggregate and the method of arranging standard sieves, a well as understanding how to calculate gradation according to the standard specifications.	Theoretical practical lectures	Written exams and discussions and reports
Twelfth	3 hours (1 theoretical + 2 practical)		The gradation of fine aggregates a the method of arranging standard sieves, well as understanding how to calculate gradation	Theoretical practical lectures	Written exams and discussions and reports

			according to the standard specifications.		
Thirteenth	3 hours (1 theoretical + 2 practical)		The specific weight (relative density) and absorption of coarse aggregate and its effect on the concrete mix and methods of testing it.	Theoretical practical lectures	Written exams and discussions and reports
Fourteenth	3 hours (1 theoretical + 2 practical)		The specific weight (relative density) of fine aggregate and its absorption: its definition and its effect on the concrete mix, methods of testir it, and comparing with specificatio	Theoretical practical lectures	Written exams and discussions and reports
Fifteenth	3 hours (1 theoretical + 2 practical)		The effect of suspended materials and clay materials in coarse aggregates on the cohesion of the concrete mix, their harms, and methods for treating them, as well as testing the salinity ratio fine aggregates (sulfur).	Theoretical practical lectures	Written exams and discussions and reports
Semester 2					
First	3 hours (1 theoretical + 2 practical)	Teaching the student about the materials involved in concrete work, properties, and manufacturing methods.	Definition of the abrasion ratio (wear) for coarse aggregates and the percentage of attrition and the method of testing and calculating it using the Los Angeles machine.	Theoretical practical lectures	Written exams and discussions and reports
Second	3 hours (1 theoretical + 2 practical)		Organic materials and their effects fine aggregates, their harms, and methods of treatment.	Theoretical practical lectures	Written exams and discussions and reports

Third	3 hours (1 theoretical + 2 practical)		Definition of light aggregate and how to calculate the grading.	Theoretical practical lectures	Written exams and discussions and reports
Fourth	3 hours (1 theoretical + 2 practical)		The sieve analysis of mixed coarse and fine aggregates.	Theoretical practical lectures	Written exams and discussions and reports
Fifth	3 hours (1 theoretical + 2 practical)		Porosity and absorption of lightweight aggregates	Theoretical practical lectures	Written exams and discussions and reports
Sixth	3 hours (1 theoretical + 2 practical)		Knowing the strength of various types of aggregates and comparing them with standard specifications.	Theoretical practical lectures	Written exams and discussions and reports
Seventh	3 hours (1 theoretical + 2 practical)		The mixing water and the presence of impurities, clay, sulfur compound chlorides, and organic materials have a known effect on the concrete mix.	Theoretical practical lectures	Written exams and discussions and reports
Eighth	3 hours (1 theoretical + 2 practical)		The presence of suspended particles, clay materials, salts, and chlorides and their effect on concrete mixing water.	Theoretical practical lectures	Written exams and discussions and reports
Ninth	3 hours (1 theoretical + 2 practical)		The physical test for various types fibers used in fiber-reinforced concrete, with a focus on tensile strength.	Theoretical practical lectures	Written exams and discussions and reports

Tenth	3 hours (1 theoretical + 2 practical)		Fly ash (carbon and salts) and its effect on concrete.	Theoretical practical lectures	Written exams and discussions and reports
Eleventh	3 hours (1 theoretical + 2 practical)		Types of additives for concrete and measuring their density and specific weight.	Theoretical practical lectures	Written exams and discussions and reports
Twelfth	3 hours (1 theoretical + 2 practical)		The softness of solid additives and the viscosity liquid additives.	Theoretical practical Lectures.	Written exams and discussions and reports
Thirteenth	3 hours (1 theoretical + 2 practical)		The percentage of salts and deposits of solid and liquid additives	Theoretical practical lectures	Written exams and discussions and reports
Fourteenth	3 hours (1 theoretical + 2 practical)		The effect of retarders on the initial and final setting times of cement.	Theoretical practical lectures	Written exams and discussions and reports
Fifteenth	3 hours (1 theoretical + 2 practical)		The effect of accelerated additives on the initial and final setting times of cement.	Theoretical practical Lectures.	Written exams and discussions and reports

11. Course Evaluation
The distribution of grades is as follows: 50 points for continuous assessment (20 theoretical + 20 practical + 10 for year-round work). 50 points for the final exam (40 theoretical + 10 practical).

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Properties of Concrete / Neville Concrete Technology /
Recommended books and references (scientific journals, reports…)	Access to many scientific journals published by various universities Iraq, in addition to visits to scientific libraries and the institute's library.
Electronic References, Websites	

1. Course Name:
Mathematics
2. Course Code:
C1-5
3. Semester / Year:
Semester / 1st Year:
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
90 hours per year (3 theoretical over 30 weeks) / 6 units (3 units per semester)
7. Course administrator's name (mention all, if more than one name)
Name: Imad Raad Eshaiq Email: imad.R.Eshaiq@stu.edu.iq

8. Course Objectives	
Course Objectives	Developing the student's skill in employing the principles of mathematics in various engineering applications and developing their skills to benefit from them in other engineering lessons.

9. Teaching and Learning Strategies	
Strategy	1. Cognitive strategies. 2. Active learning strategies. 3. Cooperative learning strategies. 4. Discussion strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st semester					

First	3 hours (theoretical)	1.The student learns about the uses of mathematics in engineering applications. 2. Develops intellectual, logical, and analytical skills to utilize them in various aspects of engineering studies.	Matrices, determinants, and their properties	Theoretical Lectures	Exams and discussions reports.
Second	3 hours (theoretical)		determinants Applications on, , by using Cramer's rule, Liner of equatio Solve force analysis equations	Theoretical Lectures	Exams and discussions reports.
Third	3 hours (theoretical)		Vectors, vector analysis, vector and scalar quantities, vector algebra, vector operations in space.	Theoretical Lectures	Exams and discussions reports.
Fourth	3 hours (theoretical)		Orthogonal vector unit, vector scale, scalar and cross product, vector applications, calculation of moment applications, work.	Theoretical Lectures	Exams and discussions reports.
Fifth	3 hours (theoretical)		Function, trigonometric functio and trigonometric relationships, logarithmic functions	Theoretical Lectures	Exams and discussions reports.
Sixth	3 hours (theoretical)		exponential functions, hyperbolic functions, their applications.	Theoretical Lectures	Exams and discussions reports.
Seventh	3 hours (theoretical)		Limits, the limit of algebraic and trigonometric functio applications of the Limit	Theoretical Lectures	Exams and discussions reports.
Eighth	3 hours (theoretical)		Sequences.	Theoretical Lectures	Exams and discussions reports.
Ninth	3 hours (theoretical)		Differentials, derivatives, derivatives of algebraic functions, chain rule.	Theoretical Lectures	Exams and discussions reports.

Tenth	3 hours (theoretical)		Curved functions, standard functions, higher-order derivatives.	Theoretical Lectures	Exams and discussions reports.
Eleventh	3 hours (theoretical)		Derivatives of trigonometric functions, derivatives logarithmic functions.	Theoretical Lectures	Exams and discussions reports.
Twelfth	3 hours (theoretical)		Derivatives of exponential functions, derivatives of hyperbolic functions.	Theoretical Lectures	Exams and discussions reports.
Thirteenth	3 hours (theoretical)		Applications of derivatives, tangent and normal equations velocity, acceleration, and magnification.	Theoretical Lectures	Exams and discussions reports.
Fourteenth	3 hours (theoretical)		Foundations and logarithms.	Theoretical Lectures	Exams and discussions reports.
Fifteenth	3 hours (theoretical)		General physical and engineering applications, graphing functions.	Theoretical Lectures	Exams and discussions reports.
2nd semester					
First	3 hours (theoretical)		Integration, indefinite integration, integration of algebraic and logarithmic functions.	Theoretical Lectures	Exams and discussions reports.
Second	3 hours (theoretical)		Integration of exponential and trigonometric functions.	Theoretical Lectures	Exams and discussions reports.

Third	3 hours (theoretical)		Definite integration, applications of definite integration, area under a curve, area between curves.	Theoretical Lectures	Exams and discussions reports.
Fourth	3 hours (theoretical)		Volumes of revolution, arc length a curve.	Theoretical Lectures	Exams and discussions reports.
Fifth	3 hours (theoretical)		Physical and Engineering applications (work, torque, momentum, moment of inertia).	Theoretical Lectures	Exams and discussions reports.
Sixth	3 hours (theoretical)		General methods of integration, including substitution and fractionalization.	Theoretical Lectures	Exams and discussions reports.
Seventh	3 hours (theoretical)		General methods of integration, including substitution and fractionalization.	Theoretical Lectures	Exams and discussions reports.
Eighth	3 hours (theoretical)		Using partial, exponential, and logarithmic fractions.	Theoretical Lectures	Exams and discussions reports.
Ninth	3 hours (theoretical)		Numerical methods of integration, the trapezoidal rule, the rule for calculating the volume of soil and the area of longitudinal sections.	Theoretical Lectures	Exams and discussions reports.
Tenth	3 hours (theoretical)		Solving discrete, homogeneous, and linear differential equations with their various applications within the field of specialization.	Theoretical Lectures	Exams and discussions reports.

Eleventh	3 hours (theoretical)		Finding the maximum minimum value of a vertical curve.	Theoretical Lectures	Exams and discussions reports.
Twelfth	3 hours (theoretical)		Complex numbers, addition, subtraction, multiplication, and division.	Theoretical Lectures	Exams and discussions reports.
Thirteenth	3 hours (theoretical)		Polar form, converting polar form to algebraic form and vice versa, powers and roots, representing roots graphically.	Theoretical Lectures	Exams and discussions reports.
Fourteenth	3 hours (theoretical)		Statistical operations, frequency distributions, histograms, frequency curves, mean, range, standard deviation, variance, and mean.	Theoretical Lectures	Exams and discussions reports.
Fifteenth	3 hours (theoretical)		Statistical operations, frequency distributions, histograms, frequency curves, mean, range, standard deviation, variance, and mean.	Theoretical Lectures	Exams and discussions reports.

1. Course Evaluation

Distribution as follows:40 degree for striving (30 theoretical + 10 year's works). 60 marks for final exam

2. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Thomas' Calculus – G., B., Thomas, M., D., Weir, J. Hass
Recommended books and references (scientific journals, reports…)	Reviewing many scientific journals issued by various Iraqi universities, in addition to visits to scientific librariesand the institute's library.
Electronic References, Websites	

1. Course Name:
Engineering drawing
2.Course Code:
C 1 – 6
3.Semester / Year:
semester First year first semester – Board second semester – Engineering drawing with AutoCAD
4.Description Preparation Date:
1/6/2025
5.Available Attendance Forms:
Attendance is in-person only.
6.Number of Credit Hours (Total) / Number of Units (Total)
180 hours per year (6 practical weeks over 30 weeks) / 12 units (6 units per semester)
7.Course administrator's name (mention all, if more than one name)
Name: M.M. Mais Salem Akool Email: mais.s.akool.u@stu.edu.iq
8.Course Objectives
Course Objectives: Developing the student's ability to apply the principles of mathematics in various engineering applications and enhancing their skills to benefit from them in other engineering lessons.
9.Teaching and Learning Strategies

Strategy	1. Cognitive strategies. 2. Active learning strategies. 3. Cooperative learning strategies. 4. Discussion strategy

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Semester 1/ engineering drawing – board					
First	6 hours (practical)	Introducing the student to tools of geometric drawing how to use them, and preparing and reading the drawing board and map contents.2- Developing and enhancing the creative and imaginative aspect, and training the student on geometric perspective and projections.3- Familiarizing and mastering various engineering operations that can be utilized in work reality, such as surveying operations for establishing boundaries, projecting columns, and determining centers.	The tools and pens used in drawing how to use them, how secure the canvas, make the frame, and write title, along with an explanation of the types of fonts.	Practica Lecture	Written exams and evaluation of drawing boards.
Second	6 hours (practical)		Geometric drawing (Latin letter and Arabic letters).	practica Lecture	Written exams and evaluation of drawing boards.
Third	6 hours (practical)		Explaining all the geometric operations that a student needs to implement complex shapes, in addition to introducir them to the geometri rules used in executir regular polygons insi and outside known circles.	Practica Lecture	Written exams and evaluation of drawing boards
Fourth	6 hours (practical)		Explaining all the geometric operations that a student needs to implement complex shapes, in addition to introducir them to the geometri rules used in executir regular polygons insi and outside known circles.	Practica Lecture	Written exams and evaluation of drawing boards.
Fifth	6 hours (practical)		Explanation of all the geometric operations that a student needs to implement complex shapes, in addition to introducir them to the geometri rules used in executing regular polygons inside	Practica Lecture	Written exams and evaluation of drawing boards.

			and outside known circles.		
Sixth	6 hours (practical)		Methods of drawing oval shapes and applications for drawing decorations.	Practica Lecture	Written exams and evaluation of drawing boards.
Seventh	6 hours (practical)		Explanation of the theory of vertical projection with simp applications.	Practica Lecture	Written exams and evaluation of drawing boards.
Eighth	6 hours (practical)		Continuing to apply vertical project theory while taking drawing measuremer into consideration.	Practica Lecture	Written exams and evaluation of drawing boards.
Ninth	6 hours (practical)		Recognizing the dimensional placeme on shapes while continuing to apply the theory of vertical projection on shapes containing cavities or cylindrical protrusior	Practica Lecture	Written exams and evaluation of drawing boards.
Tenth	6 hours (practical)		Recognizing the dimensional placeme on shapes while continuing to apply the theory of vertical projection on shapes containing cavities or cylindrical protrusior	Practica Lecture	Written exams and evaluation of drawing boards.
Eleventh	6 hours (practical)		Recognizing the dimensional placeme on shapes while continuing to apply the theory of vertical projection on shapes containing cavities or cylindrical protrusior	Practica Lecture	Written exams and evaluation of drawing boards.
Twelfth	6 hours (practical)		Explanation of the theory of axial projection at an angle of 30 degrees (Isometric) with sim applications on it.	Practica Lecture	Written exams and evaluation of drawing boards.
Thirteenth	6 hours (practical)		Introducing the stude to how to apply dimensions to drawn shapes using axial projectior and touching on the scales of drawing whi continuing to take applications on it..	Practica Lecture	Written exams and evaluation of drawing boards.
Fourteenth	6 hours (practical)		Continuing to	Practica Lecture	Written exams and evaluation

			take applications in t theory of axial projection such shapes containing inclined surfaces and shapes containing cavities or cylindrica protrusions.		of drawing boards.
Fifteenth	6 hours (practical)		Continuing take applications in the theory of axial projection such shapes containing inclined surfaces and shapes containing cavities or cylindrica protrusions.	Practica Lecture	Written exams and evaluation of drawing boards.
Semester 2 / engineering drawing in AutoCAD					
First	6 hours (practical	Introducing the student to tools of geometric drawing how to use them, and preparing and reading the drawing board and map contents.2- Developing and enhancing the creative and imaginative aspect, and training the student on geometric perspective and projections.3- Familiarizing and mastering various engineering operations that can be utilized in work reality, such as surveying operations for establishing boundaries, projecting columns, and determining centers.	Continuing to take applications in axial projection theory, suc as shapes containing inclined surfaces and shapes with cavities c cylindrical protrusion	Practica Lecture	Written exams and evaluation of drawing boards.
Second	6 hours (practical		Explaining the princi of assembling projections into three dimensional shapes.	Practica Lecture	Written exams and evaluation of drawing boards.
Third	6 hours (practical		Continuing to take applications on assembly collections container shapes with inclined surfaces or protrusions or cylindrical cavities.	Practica Lecture	Written exams and evaluation of drawing boards.
Fourth	6 hours (practical		Continuing to take applications on assembly collections container shapes with inclined surfaces or protrusions or cylindrical cavities.	Practica Lecture	Written exams and evaluation of drawing boards.
Fifth	6 hours (practical		Explanation of the principles of sections and their importance in engineering drawing along with shading methods.	Practica Lecture	Written exams and evaluation of drawing boards.
Sixth	6 hours (practical		Continuing to take applications on sections for shapes containing overlappi cavities.	Practica Lecture	Written exams and evaluation of drawing boards.
Seventh	6 hours (practical		Continuing to	Practica Lecture	Written exams and evaluation of drawing

			take applications on sections for shapes containing overlappi cavities.		boards.
Eighth	6 hours (practical		Initial applications or the computer using th (AutoCAD) program to impleme simple exercises in engineering operatio drawing polygons, and princi of orthogonal project	Practica Lecture	Written exams and evaluation of drawing boards.
Ninth	6 hours (practical		Initial applications or the computer using th (AutoCAD) program to implemer simple exercises in engineering operatio drawing polygons, and princi of orthogonal project	Practica Lecture	Written exams and evaluation of drawing boards.
Tenth	6 hours (practical		Initial applications or the computer using th (AutoCAD) program to impleme simple exercises in engineering operatio drawing polygons, and princi of orthogonal project	Practica Lecture	Written exams and evaluation of drawing boards.
Eleventh	6 hours (practical		Principles of architectural drawing Importance of architectural drawing Types of architectura maps and how to organize them.	Practica Lecture	Written exams and evaluation of drawing boards.
Twelfth	6 hours (practical		For architectural symbols with applications on them.	Practica Lecture	Written exams and evaluation of drawing boards.
Thirteenth	6 hours (practical		Draw a horizontal plan for a small house at a scale of 1:100.	Practica Lecture	Written exams and evaluation of drawing boards.
Fourteenth	6 hours (practical		Drawing sections in t foundations and walls.	Practica Lecture	Written exams and evaluation of drawing boards.
Fifteenth	6 hours (practical		Drawing a facade for house with enlarged vertical sections.	Practica Lecture	Written exams and evaluation of drawing boards.
13. Course Evaluation					
Distribution is as follows: 50 points for effort (30 practical + 20 for the year-round assignments). 50 points for the final exam.					
14. Learning and Teaching Resources					

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Access to many scientific journals published by various universities in Iraq, addition to visits to scientific libraries and the institute's library.
Electronic References, Websites	

1.Course Name:					
Computer fundamentals (1)					
2.Course Code:					
C 1 – 7					
3.Semester / Year:					
semester / first year					
4.Description Preparation Date:					
1/6/2025					
5.Available Attendance Forms:					
Attendance is in-person only.					
6.Number of Credit Hours (Total) / Number of Units (Total)					
30 hours in the first semester (2 hours of practical work over 15 weeks) / units					
7.Course administrator's name (mention all, if more than one name)					
Name: Ahlam Aziz Jafar Email: ahlamalmansorr@gmail.com					
8.Course Objectives					
Course Objectives: Introducing the student to the calculator with an idea about its prospects and its use in various fields, as well as the principles of programming and acquiring a skill in using the calculator to implement pre-prepared programs for application in their area of specialization.					
9.Teaching and Learning Strategies					
Strategy	1. Cognitive strategies. 2. Active learning strategies. 3. Cooperative learning strategies. 4. Discussion strategy				
10.Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
Semester 1					

First	2 hours (practical)	1 – Providing the student with comprehensive knowledge of the types of building materials, their properties, methods production, and their uses. 2 – The ability to classify materials, conduct standard laboratory tests, and determine their suitability and how well they conform to their intended purpose.	Introduction to computers: their generations, components: Hardware and Software (system software and application software).	Practical lectures	Written and practical exams and discussions
Second	2 hours (practical)		Windows 10 Operating System: The concept of the Windows system, its features and basic requirements, system operation, components of the main desktop screen, the concept of an icon, methods of interacting with mouse activitie the importance and components of the Task Bar, utilizing start to Access programs, the concept of loaded tasks, exiting system and shutting down the computer. * The concept of a window for any program and getting to know its main components, interacting with desktop icons such as: (My Documents; My Computer; Recycle Bin). * Familiarizing yourse with (My Computer) in terms of disks, folders, and files, and how to handle formatting disks and copying folders and	Practical lectures	Written and practical exams and discussions

			files, using cut and paste, and understanding the properties of disks, folders, and files, dealing with the Recycle Bin and how delete files and restore them through what the Recycle Bin provides this regard. *Utilizing the (Run) option to execute programs appropriately as well as transitioning to the operating system command line (Ms-Dos) and handling its commands. *Using entertainment programs such as (Windows Media Player) to play movies. *Taking advantage of additional programs (Accessor such as the calculator (Calculate *Working with the drawing program (Paint) to create, save, and retrieve drawings through the commands it provid Interacting with the notes window (Notepad; WordPad) for writing texts, saving them, retrieving and printing them, and changing their print style and formatting. *Learning how to		

			obtain help (Help) a its various methods.		
Third	2 hours (practical)		Same the second week	Practical lectures	Written and practical exams and discussions
Fourth	2 hours (practical)		Same the second week	Practical lectures	Written and practical exams and discussions
Fifth	2 hours (practical)		Same the second week	Practical lectures	Written and practical exams and discussions
Sixth	2 hours (practical)		Same the second week.	Practical lectures	Written and practical exams and discussions
Seventh	2 hours (practical)		Same the second week	Practical lectures	Written and practical exams and discussions
Eighth	2 hours (practical)		Introduction to AutoCAD program version (2000) and An explanation of the program interfac Screen settings (Shape; Grid; Limits). Draw menu. Modify menu. Object Shape menu. Layers. Dimensions. Text. Storing files and importing files from other programs and exporting them. Creating Blocks and importing parts from other programs. Drawing a simple house plan. Drawing section of a simple building. Printing, copying, and outputting files to the printer and plotter.	Practical lectures	Written and practical exams and discussions
Ninth	2 hours (practical)		Same to the eighth week.	Practical lectures	Written and practical exams and discussions

Tenth	2 hours (practical)		Same to the eighth week.	Practical lectures	Written and practical exams and discussions
Eleventh	2 hours (practical)		Same to the eighth week.	Practical lectures	Written and practical exams and discussions
Twelfth	2 hours (practical)		Same to the eighth week.	Practical lectures	Written and practical exams and discussions
Thirteenth	2 hours (practical)		Same to the eighth week.	Practical lectures	Written and practical exams and discussions
Fourteenth	2 hours (practical)		Same to the eighth week.	Practical lectures	Written and practical exams and discussions
Fifteenth	2 hours (practical)		Same to the eighth week.	Practical lectures	Written and practical exams and discussions

15. Course Evaluation	
Distribution as follows: 50 degrees for the effort (40 practical exam + 10 coursework). 50 degrees for the final exam (practical).1. Sources of learning and teaching.	
16. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Windows & AutoCAD user manual.
Recommended books and references (scientific journals, reports…)	Access to many scientific journals published by various universities in Iraq, in addition to visits to scientific libraries and t institute's library.
Electronic References, Websites	

1.Course Name:
Workshops
2.Course Code:
C 1– 8
3.Semester / Year:
semester / first year
4.Description Preparation Date:
1/6/2025
5.Available Attendance Forms:
Attendance is in-person only.
6.Number of Credit Hours (Total) / Number of Units (Total)
45 hours in the first semester (3 hours of practical work over 15 weeks) / (4 units per semester)
7.Course administrator's name (mention all, if more than one name)
Name: Karim Mohammed Hassan Email: kareem.alhamrany@stu.edu.iq
8.Course Objectives
Course Objectives: Acquiring manual skills in the use of hand tools, measuring instruments, a operating machines necessary to prepare the student as a technician in the field of construction a building.
9.Teaching and Learning Strategies

Strategy	1. Cognitive strategies. 2. Active learning strategies. 3. Cooperative learning strategies. 4. Discussion strategy

10.Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
Semester 1					
First	3 hours (practical)	1- Introducing students various machines and hand tools .2- Preparing students to safely and correctly handle these tools and machines and apply the in practical situations.	Industrial security: the general rules for accident prevention, health care equipmen and how to use them.	Practical lectures	Practical exams and discussion
Second	3 hours (practical)		Carpentry: The basic principles of model woodworking and the use of hand tools	Practical lectures	Practical exams and discussion

			(Cutting saw, perforating saw, hammer, chisel, plane, file).		
Third	3 hours (practical)		Carpentry: The basic principles of model woodworking and the use of hand tools (cutt saw, perforating saw, hammer, chisel, plane, file).	Practical lectures	Practical exams and discussion
Fourth	3 hours (practical)		Use of the band saw, circular saw, planer, and press.	Practical lectures	Practical exams and discussion
Fifth	3 hours (practical)		Use of the band saw, circular saw, planer, and press.	Practical lectures	Practical exams and discussion
Sixth	3 hours (practical)	1- Introducing students various machines and hand tools. 2- Preparing students to safely and correctly handle these tools and machines and apply the in practical situations.	Machining: Training the student on machining tasks and the use of measuring tools, drills, automatic machining devices, and the shank and drilling.	Practical lectures	Practical exams and discussion
Seventh	3 hours (practical)		Machining: Training the student on machining tasks and the use of measuring tools, drills, automatic machining devices, and the shank and drilling.	Practical lectures	Practical exams and discussion
Eighth	3 hours (practical)		Turning: Using different lathes, turning operations (flat, internal contour turning, making different teeth).	Practical lectures	Practical exams and discussion
Ninth	3 hours (practical)		Turning: Using different lathes, turning operations (flat, internal contour turning, making different teeth).	Practical lectures	Practical exams and discussion
Tenth	3 hours (practical)		Plumbing: industrial safety in casting, molds and mold formation, and the steps involved in cast	Practical lectures	Practical exams and discussion
Eleventh	3 hours (practical)		Welding: A. Occupational safety and security precautions. B. Tools used and industrial safety equipment. C. Types of welding	Practical lectures	Practical exams and discussion

			(gas, ultrasonic, press welding, electric arc welding).		
Twelfth	3 hours (practical)		Welding: A. Occupational safety and security precautio B. Tools used and industrial safety equipment. C. Types of welding (gas, ultrasonic, pressure welding, electric arc welding).	Practical lectures	Practical exams and discussion
Thirteenth	3 hours (practical)		Welding: A. Occupatio safety and security precautions. B. Tools used and industrial safety equipment. C. Types of welding (gas ultrasonic, pressure welding, electric arc welding).	Practical lectures	Practical exams and discussion
Fourteenth	3 hours (practical)		Cutting and bending of metals: the machines and equipment used for cutting and bending metal sheets and reinforcement bars.	Practical lectures	Practical exams and discussion
Fifteenth	3 hours (practical)		Panel beating: Training the student on the rolling machine and the planning process on sheets.	Practical lectures	Practical exams and discussion

17. Course Evaluation	
The distribution is as follows: continuous assessment with a final score of 100.	
18. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	.
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

1.Course Name:
Human Rights and Democracy
2.Course Code:
C1-9
3.Semester / Year:
Semester / 1st Year:
4.Description Preparation Date:
1/6/2025
5.Available Attendance Forms:
Attendance is in-person only.
6.Number of Credit Hours (Total) / Number of Units (Total)
30 hours per year (2 theoretical over 15 weeks) / 2 units
7.Course administrator's name (mention all, if more than one name)
Name: Abbas Barism Habib (External lecturer) Email: basrem9@gmail.com

8.Course Objectives	
Course Objectives	Studying the principles of human rights, democracy, and freedom is a necessity of t times, as they are linked to human civil and political life. They contribute significantly to promoting equality and development, preventing conflicts, and human rights violations by promoting dialogue, accepting other opinions, and supporting democratic participation processes with the aim of establishing societies in which a human rights are valued and respected.

9.Teaching and Learning Strategies	
Strategy	1. Cognitive strategies. 2. Active learning strategies. 3. Cooperative learning strategies. 4. Discussion strategy

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st semester					

First	2 hours (theoretical)	Developing cognitive understanding	The historical development of human rights. Human rights in ancient civilizations (Mesopotamia and other ancient civilizations).	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams.
Second	2 hours (theoretical)		Human rights in divine laws, with a focus on human right in Islam.	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams
Third	2 hours (theoretical)		Human rights in the Middle Ages and modern times.	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams
Fourth	2 hours (theoretical)		Regional recognition of human rights at th European, American, African, Islamic, and Arab levels.	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams
Fifth	2 hours (theoretical)		Non-governmental organizations and their role in human rights (the International Committee of the Red Cross, Amnesty International, Human Rights Watch, the Arab Organization for Human Rights).	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams
Sixth	2 hours (theoretical)		Human rights in international and regional conventions and national legislati Human rights in international conventions (the Universal Declaration of Human Rights, the two International Covenants on Human Rights).	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams
Seventh	2 hours (theoretical)		Human rights in regional conventions (the European Convention on	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams

			Human Rights, the American Conventio on Human Rights, the African Charter on Human Rights, and the Arab Charter on Human Rights).		
Eighth	2 hours (theoretical)		Human rights in national legislation (the Iraqi Constitution).	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams
Ninth	2 hours (theoretical)		Forms and Generations of Human Rights: Forms of human rights (individual rights, collective rights). Generations of human rights (first generation: civil and political rights), (Second generation: economic and social rights), third generation: modern human rights), water and environmental awareness.	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams
Tenth	2 hours (theoretical)		Human rights guarantee and protection at the national level: Constitutional, judicial, and political guarantees.	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams
Eleventh	2 hours (theoretical)		Human rights guarantee and protection at the regional and international levels. (The role of the United Nations, the role of regional organizations), the crime of genocide.	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams
Twelfth	2 hours (theoretical)		Classification of public freedoms: (Fundamental and individual freedoms: freedom of security and a sense of	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams

			security, freedom of movement and return, personal freedom).		
Thirteenth	2 hours (theoretical)		Intellectual and cultural freedoms: (freedom of opinion, freedom of belief, freedom of education	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams
Fourteenth	2 hours (theoretical)		Freedom of the press freedom of assembly freedom of association.	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams
Fifteenth	2 hours (theoretical)		Economic and social freedoms (freedom of work, freedom of property, freedom of trade and industry).	Theoretical Lectures	Weekly, monthly, dail and end-of -year exams

11.Course Evaluation

Distribution as follows:40 degree for striving (30 theoretical + 10 year's works). 60 marks for final exam (theoretical)

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	1-Human Rights (Development -Content- Protection) Prof. Dr. Riyad A Hadi 2- Human rights, democracy and public freedoms. Dr. Maher Sabry Kazem
Recommended books and references (scientific journals, reports…)	Reviewing many scientific journals issued by various Iraqi universities, addition to visits to scientific libraries and the institute's library.
Electronic References, Website	

1.Course Name:
English language
2.Course Code:
C 1 – 10
3.Semester / Year:
semester / first year
4.Description Preparation Date:
1/6/2025
5.Available Attendance Forms:
Attendance is in-person only.
6.Number of Credit Hours (Total) / Number of Units (Total)
30 hours in the second semester (2 theoretical hours over 15 weeks) / units)
7.Course administrator's name (mention all, if more than one name)
Name: Mahmoud Abdallah Abdulmonem Email: muhmood.abid@stu.edu.iq
8.Course Objectives
Course Objectives: The student should be able to recognize the English language at an advanced level and enable them to communicate in a simple way.
9.Teaching and Learning Strategies

Strategy	1. Cognitive strategies. 2. Active learning strategies. 3. Cooperative learning strategies. 4. Discussion strategy

10.Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
Semester 1					
First	2 hours (theoretical)	Development of cognitive understanding.	A/ pronunciation: voiceless consonants B/ elements of sentence structure C/ patterns of sentences A/pronunciation: voiceless consonants (ii) B/ the part of speech: 1.nouns 2. verbs 3. Adjectives 4. Adverbs	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam

Second	2 hours (theoretical)		A/ pronunciation: voice consonants (I) B/ the parts of speech: 1. articles 2. Demonstratives 3. Pronouns 4. Prepositions 5. Conjunctions 6. Interpunctions A/ pronunciation: voice consonants (ii) B/ classification of verb	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam.
Third	2 hours (theoretical)		A/ pronunciation: pure vowels B/ pronouns (I) A/pronunciation: diphthongs B/pronounce (II)	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam.
Fourth	2 hours (theoretical)		A/ types of questions B/genitives A/ the present simple tense B/the present continuo tense C/ the present perfect tense	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam.
Fifth	2 hours (theoretical)		A/ the past simple tense B/ the past perfect tens C/ future A/ active and passive voice B/ the number system in English	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam
Sixth	2 hours (theoretical)		A/punctuation A/business letters B/tenders.	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam.
Seventh	2 hours (theoretical)		Comprehensive paragraphs about the branches of civil engineering.	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam.
Eighth	2 hours (theoretical)		Interpretation of the above-mentioned paragraphs	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam.
Ninth	2 hours (theoretical)		Extracting the technical terms.	Theoretical Lectures	Weekly, monthly, daily, and written exams, and

					the final exam.
Tenth	2 hours (theoretical)		Making an independent sentence by using the terms.	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam.
Eleventh	2 hours (theoretical)		Writing a composition using the terms related the subject under discussion	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam.
Twelfth	2 hours (theoretical)		Comprehensive paragraphs about the branches of civil engineering.	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam.
Thirteenth	2 hours (theoretical)		Interpretation of the above-mentioned paragraphs Extracting the technical terms Making an independent sentence by using the terms Writing a composition using the terms related to the subject under discussion.	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam.
Fourteenth	2 hours (theoretical)	Development of cognitive understanding	Interpretation of the above-mentioned paragraphs Extracting the technical terms Making an independent sentence by using the terms Writing a composition using the terms related the subject under discussion	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam.
Fifteenth	2 hours (theoretical)	Development of cognitive understanding	Interpretation of the above-mentioned paragraphs Extracting the technical terms Making an independent sentence by using the terms Writing a composition using the terms related the subject under discussion.	Theoretical Lectures	Weekly, monthly, daily, and written exams, and the final exam.
19. Course Evaluation					

Distribution is as follows: 40 points for ongoing assessment (30 written exam + 10 coursework). 60 points for the final exam (theoretical).	
20. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Access to many scientific journals published by various universities in Iraq, in addition to visits to scientific libraries and the institute's library.
Electronic References, Websites	

Course Description for Second Stage 2024-2025

1. Course Name:
Concrete technology 2
2. Course Code:
C2-1
3. Semester / Year:
Semester/second year
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6.Number of Credit Hours (Total) / Number of Units (Total)
120 hours per year (4 practical hours per week over 30 weeks) / 8 credit units (4 units p semester)
7.Course administrator's name (mention all, if more than one name)
Name: Dr. Hanadi Abdul Redha Latif Email: hanadi.ridha@stu.edu.iq

8.Course Objectives	
Course Objectives	**Teaching the student the fundamental principles of concrete composition, its mixture design, various methods of concrete casting, its production at construction sites, as well as practical implementation details.**

9.Teaching and Learning Strategies	
Strategy	1. **Cognitive Strategies** 2. **Active Learning Strategies** 3. **Cooperative Learning Strategies** 4. **Discussion Strategy**

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First semester					

1	4 hours (2 theoretical - 2 practical)	-Enable students to master the principles, theories, and fundamental concepts related to the nature of concrete, its constituent production processes, mixing methods, and the required mixing time. -Equip students with the capability to conduct both laboratory and on-site concrete testing procedures. -Familiarize students with the various techniques and methods used for the treatment and curing of concrete in construction.	**Theoretically:** General rev of the materials used in concrete **Practically:** General review of the tests related cement and aggregates	Theoretical Practical Lectures	Written Exams, Discussions, an Reports
2	4 hours (2 theoretical - 2 practical)		Concrete Mixing		
3	4 hours (2 theoretical - 2 practical)		Properties of Fresh Concre		
4	4 hours (2 theoretical - 2 practical)		**Concrete Tests:** Flow Test, Penetration Test, Slump Test, Compaction Factor Test. Remoulding Test using Vibration and Frequency Oscillations **Practically:** Conducting the Compactic Factor Test for Fresh Concrete		
5	4 hours (2 theoretical - 2 practical)		**Properties of Fresh Concrete:** Bleeding, Segregation **Practically:** Conducting the Remolding Test using Frequency Vibrations		
6	4 hours (2 theoretical - 2 practical)		**Plastic Shrinkage and Unit Weight in Fresh Concrete** **Practically:** Conducting the Flow Test for Fresh Concrete		
7	4 hours (2 theoretical - 2 practical)		**Theoretically:** The effect of air voids and methods of measuring them, calculating unit weight and cement factor in fresh concrete, the density equation, and the absolute volume method		

			for determining concrete mix components. **Practically:** Field Penetration Test for Fresh Concrete		
8	4 hours (2 theoretical - 2 practical)		Density Equation and Absolute Volume Equation **Practically:** Conducting the experiment on the effect of the water/cemer ratio on the compressive strength of hardened concrete.		
9	4 hours (2 theoretical - 2 practical)		Concrete Transportation **Practically:** Experiment on the effect of the mix ratio on the compressive strength of hardened concrete		
10	4 hours (2 theoretical - 2 practical)		Concrete Curing **Practically:** Experiment on the effect of curing methods on the compressive strength of hardened concrete		
11	4 hours (2 theoretical - 2 practical)		Pumped Concrete **Practically:** Effect of manual and mechanical compaction methods on the compressive strength of hardened concrete		
12	4 hours (2 theoretical - 2 practical)		Ready-Mixed Concrete **Practically:** Effect of the shape and size of the mold on the compressive strength of hardened concrete		
13	4 hours (2 theoretical - 2 practical)		Hardened Concrete **Practically:** Effect of age on the compressive strength hardened concrete		

14	4 hours (2 theoretical - 2 practical)		Tests for the Strength of Hardened Concrete **Practically:** Experiment on the tensile strength of hardened concrete		
15	4 hours (2 theoretical - 2 practical)		Factors Affecting Concrete Strength **Practically:** Experiment to determine flexural (bending) strength of hardened concrete using models shaped as unreinforced concrete beams		
Second semester					
1	4 hours (2 theoretical - 2 practical)		Concrete Shrinkage **Practically:** Testing the effect of using admixtures on the workability of fresh concrete.	Theoretical Practical Lectures	Written Exams, Discussions, an Reports
2	4 hours (2 theoretical - 2 practical)		Admixtures **Practically:** Testing the effect of admixtures on the strength hardened concrete (compressive strength, splitting tensile strength, and flexural tensile strengt		
3	4 hours (2 theoretical - 2 practical)		Types of Admixtures **Practically:** Testing the effect of different admixtures on the strength of hardened concrete (compressive strength, splitting tensile strength, and flexural tensile strength).		

4	4 hours (2 theoretical + 2 practical)		Concrete Mix Design **Practically:** Schmidt Hammer Test.		
5	4 hours (2 theoretical + 2 practical)		Concrete Mix Design **Practically:** Ultrasonic Pulse Velocity Test.		
6	4 hours (2 theoretical + 2 practical)		Applied Problems **Practically:** Testing the effect of fibres the workability of fresh concrete.		
7	4 hours (2 theoretical + 2 practical)		Applied Problems **Practically:** Testing the effect of fibres on the strength of hardened concrete (compressive strength, splitting tensile strength, and flexural tensile strength)		
8	4 hours (2 theoretical + 2 practical)		Non–Destructive Testing of Concrete: Radiographic Methods, Hardness Methods, Pulse Velocity Methods, and Resonance Methods. **Practically:** Workability Test of Lightweight Concrete.		
9	4 hours (2 theoretical + 2 practical)		**Fiber Reinforced Concrete** **Practically:** Compressive Strength Test of Lightweigh Concrete.		
10	4 hours (2 theoretical + 2 practical)		Polymer Concrete **Practically:** Strength tests for high–strength concrete		

			(compressive strength, splitting tensile strength, and flexural tensile strengt		
11	4 hours (2 theoretical + 2 practical)		Special Types of Concrete: Mass concrete, lightweight concrete, heavyweight concrete, underwater concrete, and pre-placed aggregate concrete. **Practically:** Strength tests for high-performance concrete (compressive strength, splitting tensile strength, and flexural tensile strengt		
12	4 hours (2 theoretical + 2 practical)		Special Types of Concrete: High-performance concrete self-compacting concrete, high-strength concrete, and roller-compacted concrete. **Practically:** Workability test for self-compacting concrete.		
13	4 hours (2 theoretical + 2 practical)		Strength Testing of Self-Compacting Concrete (Compressive strength, splitting tensile strength, and flexural tensile strengt		
14	4 hours (2 theoretical + 2 practical)		Repair, Maintenance, and Treatment of Concrete in Buildings Using certain reinforcing materials such as epoxy and carbon fibres.		

			Practically: Concrete Mix Design Project.		
15	4 hours (2 theoretical + 2 practical)		Concrete Mix Design Project Conducting trial mixes following both the American and British methods, including all relevant tests for cement and aggregates.		

11.Course Evaluation

Distribution as follows:
50 marks for coursework (20 theoretical + 20 practical + 10 semester activities).
50 marks for the final exam (40 theoretical + 10 practical).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	تكنولوجيا الخرسانة ، جلال بشير سرسم
Main references (sources)	تكنولوجيا الخرسانة ، د. مؤيد نوري الخلف و هناء عبد يوسف
Recommended books and references (scientific journals, reports…)	The Iraqi Journal of Civil Engineering
Electronic References, Websites	Numerous websites related to civil engineering

1. Course Name:
Construction Technology 2
2. Course Code:
C2-2
3. Semester / Year:
Semester/second year
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
120 hours per year (4 practical hours per week over 30 weeks) / 8 credit units (4 units p semester)
7. Course administrator's name (mention all, if more than one name)
Name: Walid Abboud Yassin Email: eng.waleed1964@gmail.com
8. Course Objectives

Course Objectives	To equip the student with practical skills and prepare them to carry out construction and building works, enabling them to competently supervise work upon graduation.

9. Teaching and Learning Strategies	
Strategy	1. Cognitive Strategies 2. Active Learning Strategies 3. Cooperative Learning Strategies 4. Discussion Strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First semester					
1	4 hours practical		Foundation Planning		

2	4 hours practical	Enabling students to acquire the basic skills in construction and building works	Excavations, Support of excavation sides	Theoretical Practical Lectures	Written Exams, Discussions, and Reports
3	4 hours practical		Foundation reinforcement		
4	4 hours practical		Showing an educational film on pile foundation works		
5	4 hours practical		Brickwork, English bond		
6	4 hours practical		Brickwork, German bond		
7	4 hours practical		Block masonry (block, thermestone)		
8	4 hours practical		Wooden formwork works for columns, bridges, stairs, and ceilings		
9	4 hours practical		Continuation of wooden formwork works		
10	4 hours practical		Concrete pouring, manual pouring, mechanical vibration		
11	4 hours practical		Field visit to a wooden formwork site		
12	4 hours practical		Reinforcement works, reinforcing steel, proper methods of use		
13	4 hours practical		Making reinforcement models for a column, bridge, and slab		
14	4 hours practical		Ironworks (steel sections and aluminum sections)		
15	4 hours practical		Application of tiles and stick		
Second semester					
1	4 hours practical		Damp-proofing works		
2	4 hours practical		Continuation of damp-proof works		

3	4 hours practical		Thermal insulation		
4	4 hours practical		Plastering works		
5	4 hours practical		Troweling and spraying works (Using cement mortar)		
6	4 hours practical		Troweling and spraying works (Using cement mortar – slur		
7	4 hours practical		Ceramic tile cladding works		
8	4 hours practical		Wall cladding works		
9	4 hours practical		Secondary ceilings		
10	4 hours practical		Painting works		
11	4 hours practical		Plumbing works		
12	4 hours practical		Electrical works		
13	4 hours practical		Mechanical works		
14	4 hours practical		Road works, foundations an sub–foundations for roads		
15	4 hours practical		Continuation of road works		

11. Course Evaluation

Distribution as follows: continuous assessment; final grade out of 100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	The Iraqi Journal of Civil Engineering The Egyptian Journal of Surveying
Electronic References, Websites	Numerous websites specialized in civil enginee

1. Course Name:
Quantitative survey 2
2. Course Code:
C2-3
3. Semester / Year:
Semester/Second year
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
90 hours per academic year (1 hour theoretical + 2 hours practical per week over 30 weeks) credit units (3 units per semester)
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Marwan Adel Hassan Email: marwan.adil@stu.edu.iq
8. Course Objectives

Course Objectives	To introduce students to the methods of calculating the quantities of structural elements involved in the execution of buildings and constructions, including quantity take-offs and analysis of these quantities into their primary resources. The course also covers the fundamentals of pricing and cost estimation, contracting works, technical specifications, and the management of engineering projects

9. Teaching and Learning Strategies	
Strategy	1. Cognitive Strategies 2. Active Learning Strategies 3. Cooperative Learning Strategies 4. Discussion Strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	3 hours (1 theoretical + 2 practical)	1.To introduce students to the fundamentals of quantity surveying and project management methods. 2.To develop the ability to analyze construction activities, calculate their quantities, estimate prices, and determine overall costs. 3.To enable students to perform quantity take-offs for both visible and hidden executed works. 4.To equip students with the skills to organize and prepare various contract-related forms, includin those for tenders, maintenance periods, and project advances	Definitions of estimation , its purpose, and the fundamental principles it relies on	Theoretical Practical Lectures	Written Exams, Discussions, and Reports
2	3 hours (1 theoretical + 2 practical		Types of estimation and the units of measurement used for each item		
3	3 hours (1 theoretical + 2 practical		Quantities of earthworks for structure foundations		
4	3 hours (1 theoretical + 2 practical		Standard Method of Measurement and price analysis		
5	3 hours (1 theoretical + 2 practical		Quantities of items below the damp-proof course (e.g., squaring for excavation, foundation concrete estimation using cubic measurements		
6	3 hours (1 theoretical + 2 practical				
7	3 hours (1 theoretical + 2 practical		Quantities of structural items above the damp-proof course, including damp-proof concrete and brickwork		
8	3 hours (1 theoretical + 2 practical				
9	3 hours (1 theoretical + 2 practical		Calculation of quantities for concrete, reinforceme steel, and formwork for foundations Structural buildings with wall foundations and pile foundations		
10	3 hours (1 theoretical + 2 practical				
11	3 hours (1 theoretical + 2 practical		Calculation of quantities for concrete, reinforcement steel, and formwork		

12	3 hours (1 theoretical + 2 practical		For tie beams in structural buildings below plinth level For lintel beams above openings		
13	3 hours (1 theoretical + 2 practical		Calculation of quantities for concrete, reinforcement steel, and formwork for columns of all types		
14	3 hours (1 theoretical + 2 practical		Calculation of quantities for concrete, reinforcement steel, and formwork for various concrete works with special shapes, such as domes and arches		
15	3 hours (1 theoretical + 2 practical		Calculation of quantities for concrete, reinforcement steel, and formwork for one-way slabs		
Second semester					
1	3 hours (1 theoretical + 2 practical		Calculation of quantities concrete, reinforcement steel, and formwork for two-way slabs		
2	3 hours (1 theoretical + 2 practical		Calculation of quantities for concrete, reinforcement steel, and formwork for stairs of various types	Theoretical & Practical Lectures	Written Exams Discussions, and Reports
3	3 hours (1 theoretical + 2 practical		Calculation of quantities for secondary ceiling works Calculation of levelling work		
4	3 hours (1 theoretical + 2 practical		Calculation of quantities for finishing works		

5	3 hours (1 theoretical + 2 practical		(troweling, plastering, spraying, and painting) and ceramic tile cladding		
6	3 hours (1 theoretical + 2 practical		Calculation of quantities for flooring works, ceramic tiles, tile skirting, and facade cladding		
7	3 hours (1 theoretical + 2 practical		Calculation of quantities for electrical and mechanical installations		
8	3 hours (1 theoretical + 2 practical		Calculation of quantities for plumbing and sanitary installations		
9	3 hours (1 theoretical + 2 practical		Calculation of quantities for structural works of prefabricated buildings		
10	3 hours (1 theoretical + 2 practical		Calculation of quantities for steel structures work		
11	3 hours (1 theoretical + 2 practical		Contracts and contracting and contract organizatio		
12	3 hours (1 theoretical + 2 practical		Definitions in manageme relationships among individuals and organization, and responsibilities of personnel		
13	3 hours (1 theoretical + 2 practical		Project Scheduling (Work progress schedules, Arro Network Diagrams, and Critical Path Method)		
14	3 hours (1 theoretical + 2 practical				
15	3 hours (1 theoretical + 2 practical		Applications of structural quantity estimation using computer software		

11. Course Evaluation	
Assessment distribution as follows: 40 marks for continuous assessment (30 theoretical + 10 coursework) 60 marks for the final exam	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Reviewing numerous scientific journals published various Iraqi universities, in addition to visits to scientific libraries and the institute's library.
Electronic References, Websites	

1. Course Name:
Construction machine 2
2. Course Code:
C2-4
3. Semester / Year:
Semester/second year
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours per year (2 theoretical hours per week over 30 weeks), distributed ov 4 credit units (2 units per semester)
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Ayad Abdulkhaleq Yahya Email: ayad.alyousuf@stu.edu.iq
8. Course Objectives

Course Objectives	**Determining the productivity of machines, their operating costs, an supervising the proper execution of their task**

9. Teaching and Learning Strategies	
Strategy	**1.Cognitive Strategies** **2.Active Learning Strategies** **3.Cooperative Learning Strategies** **4.Discussion Strategy**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First semester					

1	2 hours (theoretical)	1. Introducing the student to the machin used in construction works.	Construction equipment, factors to consider when selecting equipment, and the methods of acquisitio		
2	2 hours (theoretical)	2. Enabling the stude to identify the appropriate machines the required tasks.	Calculation of machine ownership costs (depreciation, investment maintenance, and repair costs)	Theoretical a Practical Lectures	Written Exams Discussions, a Reports
3	2 hours (theoretical)				
4	2 hours (theoretical)	3.Enabling the studer to calculate the operating costs of machines.			
5	2 hours (theoretical)				
6	2 hours (theoretical)	4.Enabling the studer to determine the optir choice between purchasing or renting machine	Engineering fundamental construction equipment operations		
7	2 hours (theoretical)		Specialized equipment, standard equipment, and the evaluation/compariso between the two		
8	2 hours (theoretical)		Bulldozer (Dozer)		
9	2 hours (theoretical)		Scraper		
10	2 hours (theoretical)				
11	2 hours (theoretical)		Grader		
12	2 hours (theoretical)		Field Visit		
13	2 hours (theoretical)		Excavation machines – Factors to consider when using them		
14	2 hours (theoretical)		Excavation machines, backhoe excavator, scrap bucket, and productivity calculation		
15	2 hours (theoretical)		Excavation machines, fr shovel, and productivity calculation		

Second semester					
1	2 hours (theoretical)		Clamshell bucket and selection of excavator typ and capacity		
2	2 hours (theoretical)		Loading shovel and productivity calculation		
3	2 hours (theoretical)		Transport units machines and their types		
4	2 hours (theoretical)		Truck productivity calculation		
5	2 hours (theoretical)		Soil compaction equipme types and uses		
6	2 hours (theoretical)		Material mixing equipmer for concrete works		
7	2 hours (theoretical)		Concrete transportation, compaction, and finishing equipment		
8	2 hours (theoretical)				
9	2 hours (theoretical)		Lifting machines and equipment		
10	2 hours (theoretical)		Tower crane		
11	2 hours (theoretical)		Field visit		
12	2 hours (theoretical)		Pile driving machines		
13	2 hours (theoretical)		Air compressors and pun		
14	2 hours (theoretical)		Conveyor belts		
15	2 hours (theoretical)		Stone crushers		

11. Course Evaluation

Distribution as follows:

Distribution is as follows: 40 marks for coursework (30 for theoretical exam + 10 for semester work), and 60 marks for the final exam (theoretical)

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	The Iraqi Journal of Civil Engineering
Electronic References, Websites	Various websites

1. Course Name:
Buildings and Factory construction 2
2. Course Code:
C2-5
3. Semester / Year:
Semester/second year
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours per year (2 theoretical hours per week over 30 weeks), distributed ov 4 credit units (2 units per semester)
7. Course administrator's name (mention all, if more than one name)
Name: Hayder aldeewan Email: hayder.aldeewan@stu.edu.iq
8. Course Objectives

Course Objectives	**Providing the student with the necessary information about the stages of executing traditional and prefabricated buildings, the tasks involved in each stage, and the appropriate construction machines each activity**

9. Teaching and Learning Strategies	
Strategy	**1.Cognitive Strategies** **2.Active Learning Strategies** **3.Cooperative Learning Strategies** **4.Discussion Strategy**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First semester					

1	2 hours (theoretical)	1.Teaching the student the basic principles of prefabricated construction 2.Enabling the stud to organize the site direct activities, and supervise their execution	Introduction to construction project execution methods	Theoretical a Practical Lectures	Written Exams Discussions, a Reports
2	2 hours (theoretical)		Worksite organization and planning		
3	2 hours (theoretical)		Earth excavation and metho of supporting excavation sid		
4	2 hours (theoretical)		Techniques used for groundwater dewatering		
5	2 hours (theoretical)		Earth filling operations		
6	2 hours (theoretical)		Damp-proofing layers		
7	2 hours (theoretical)		Wall construction using bric stone, and concrete blocks		
8	2 hours (theoretical)		Exterior wall finishing techniques		
9	2 hours (theoretical)		Interior wall finishing techniques		
10	2 hours (theoretical)		Floor finishing techniques fo the ground floor, upper floor and ceilings		
11	2 hours (theoretical)		Thermal insulation techniqu		
12	2 hours (theoretical)		Concrete formwork		
13	2 hours (theoretical)		Formwork removal		
14	2 hours (theoretical)		Scaffolding		
15	2 hours (theoretical)		False ceilings (suspended ceilings)		
Second semester					
1	2 hours (theoretical)		Plumbing installations (clear water and sewage)		
2	2 hours (theoretical)		Doors and windows		

3	2 hours (theoretical)		Electrical installations		
4	2 hours (theoretical)		Building joints (structural joi expansion joints)		
5	2 hours (theoretical)		Paints: types and applicatio		
6	2 hours (theoretical)		Prefabricated construction (properties and requirement		
7	2 hours (theoretical)		Types of prefabricated construction		
8	2 hours (theoretical)		Factory components and manufacturing methods		
9	2 hours (theoretical)		Details of structural element in prefabricated constructior		
10	2 hours (theoretical)				
11	2 hours (theoretical)		Joints in prefabricated construction		
12	2 hours (theoretical)		Means of circulation in buildings		
13	2 hours (theoretical)		Elevators (types, componen and installation methods)		
14	2 hours (theoretical)				
15	2 hours (theoretical)		Fire resistance of buildings and fire protection systems		

11. Course Evaluation

The distribution is as follows: 40 marks for coursework (30 for theoretical exam + 10 for semester work), and 60 marks for the final exam (theoretical)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	The Iraqi Journal of Civil Engineering
Electronic References, Websites	Various websites

1. Course Name:
English Language /2
2. Course Code:
C2-6
3. Semester / Year:
Semester/second year
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours in the second semester (2 theoretical hours per week over 15 weeks) / 2 credit units
7. Course administrator's name (mention all, if more than one name)
Name: Mahmoud Abdel- Ilah Abdel- Moneim Email: muhmood.abid@stu.edu.iq
8. Course Objectives

Course Objectives	The student should be able to recognize the English language at a advanced level and be enabled to communicate in a simple manner

9. Teaching and Learning Strategies	
Strategy	**1.Cognitive Strategies** **2.Active Learning Strategies** **3.Cooperative Learning Strategies** **4.Discussion Strategy**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First semester					

1	2 hours (theoretical)	Developing cognitiv understanding	Unit one: getting to know you Tenses Questions Questions words		
2	2 hours (theoretical)		Unit two: the way we live Present tenses Present simple Present continuous Have / have got	Theoretical a Practical Lectures	Written Exams Discussions, a Reports
3	2 hours (theoretical)		Unit three: it all went wro Past tenses Past simple Past continuous		
4	2 hours (theoretical)		Unit four: let's go shoppi Quantity Much and many Some and any Something, anyone, nobo everywhere A few, a little, a lot of Articles		
5	2 hours (theoretical)		Unit Five: what do you w to do Past tenses Verb patterns 1 Future intentions Going to and will		
6	2 hours (theoretical)		Unit six: tell me! What's i like? What's it like? Comparative and superlat Adjectives		
7	2 hours (theoretical)		Unit seven: fame Present perfect and past simple For and since Tense revision		
8	2 hours (theoretical)		Unit eight: do's and don'ts Have(got) to Should must		
9	2 hours (theoretical)		Unit nine: going places Time and conditional clauses what if...?		
10	2 hours (theoretical)		Unit ten: scared to death Verbs patterns Infinitives What, etc.+ infinitive Something, etc.+ infinitiv		

11	2 hours (theoretical)		Unit eleven: things that changed the world Passives		
12	2 hours (theoretical)		Unit twelve: dreams and reality Second conditional might		
13	2 hours (theoretical)		Unit thirteen: earning a living Present perfect continuou Present perfect simple versus Continuous		
14	2 hours (theoretical)		unit fourteen: family ties Present perfect and past perfect and clarification Reported statements		
15	2 hours (theoretical)		Unit fifteen: revision		

11. Course Evaluation

Distribution is as follows: 40 marks for coursework (30 for theoretical exam + 10 for semester work), and 60 marks for the final exam (theoretical).

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Reviewing various scientific journals publish by different universities in Iraq, in addition visits to scientific libraries and the institu library.
Electronic References, Websites	

1. Course Name:

Computer 2

2. Course Code:

C2−7

3. Semester / Year:

Semester

4. Description Preparation Date:

1/6/2025

5. Available Attendance Forms:

Attendance is in-person only.

6. Number of Credit Hours (Total) / Number of Units (Total)

(30) hours of study (2 hour)/ week at (15 week)/ (2) units

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

Name: Ahlam Aziz Jafeer
Email: ahlamalmansorr@gmail.com

8. Course Objectives :

Course Objectives	Teaching the student how to use ready-made systems and their application completing civil drawings.....

9. Teaching and Learning Strategies

Strategy	**1.Cognitive Strategies** **2.Active Learning Strategies** **3.Cooperative Learning Strategies** **4.Discussion Strategy**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Practical	1. Introducing the student to the softwa used in creating civi drawings.	General review of AutoC program Reapplying the Draw, Modify, and snap commands.		
2	2 Practical		Principles of 3D Drawing		
3	2 Practical		Applications of the commands Extrude, Revolve, and Slice		

4	2 Practical	2. Enabling the stude to master the AutoCAD program.	**Applications of the commands Union and Subtract.**	Practical Lectures	Written Exams Discussions, and Reports
5	2 Practical		Creating a simple building three dimensions.		
6	2 Practical		Creating a horizontal section model in a building		
7	2 Practical		Creating a longitudinal section model in a buildin		
8	2 Practical		Principles of Rendering Design. Adding lighting to the sce		
9	2 Practical		**Applying materials to surfaces. Creating materials for rendering.**		
10	2 Practical		**Other effects in the scene: Night lighting, backgrounds.**		
11	2 Practical		Project: Creating a model multi-story building.		
12	2 Practical		Project: Creating a model a multi-story building.		
13	2 Practical		Project: Creating a model of a multi-story building.		
14	2 Practical		**A brief introduction to software parallel to AutoCAD (3DMax).**		
15	2 Practical		Using additional im processing for AutoC outputs with (Photosh software.		

11. Course Evaluation

Distribution as follows:
50 marks for coursework (40 exam + 10 semester activities).
50 marks for the final exam practical.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Reviewing numerous scientific journals published by various universities in Iraq, in addition to visiting scientific libraries and the institute's library.
Electronic References, Websites	Many websites related to civil engineering.

1. Course Name:

Soil mechanics

2. Course Code:

C2−8

3. Semester / Year:

Semester/second year

4. Description Preparation Date:

01/06/2025

5. Available Attendance Forms:

Attendance is in-person only.

6. Number of Credit Hours (Total) / Number of Units (Total)

(120) hours of study at the rate of 4 hour per week / and (8) units

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

Name: **Abeer Sabri Bshara**
Email: abeermaj@stu.edu.iq

8. Course Objectives :

Course Objectives	**Knowledge of soil properties and impact of structures built on it .**

9. Teaching and Learning Strategies

Strategy	**1.Cognitive Strategies** **2.Active Learning Strategies** **3.Cooperative Learning Strategies** **4.Discussion Strategy**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First semester					
1	4 hours (2 theoretical - 2 practical)		Definition of soil, types of rocks		
2	4 hours (2 theoretical - 2 practical)		physical properties of soil (water content, specific gravity, density, ..)		

3	4 hours (2 theoretical - 2 practical)	1. "The rehabilitation of the student and equipping them with the necessary experience and skills in geotechnical work." 2. The student's ability to conduct laboratory and field Tests related to soil and determine its suitability for construction.	Soil granular analysis (sieve method)	Theoretical and Practica Lectures	Exams, Discussions, and Reports
4	4 hours (2 theoretical - 2 practical)		Soil granular analysis (hydrometer method)		
5	4 hours (2 theoretical - 2 practical)		plasticity properties of soil (liquid limit , pla limit , shrinkage limit)		
6	4 hours (2 theoretical - 2 practical)		Soil classification		
7	4 hours (2 theoretical - 2 practical)		Soil classification using (UCS)		
8	4 hours (2 theoretical - 2 practical)		Soil permeability (permeability of coarse soil)		
9	4 hours (2 theoretical - 2 practical)		Soil permeability (permeability of fine Soil)		
10	4 hours (2 theoretical - 2 practical)		Types of stresses in soil (normal and effective stress)		
11	4 hours (2 theoretical - 2 practical)		Soil lateral pressure , and (types of filters)		
12	4 hours (2 theoretical - 2 practical)		Soil Stabilization (Compaction)		
13	4 hours (2 theoretical - 2 practical)		Types of compaction (lab. And field)		
14	4 hours (2 theoretical - 2 practical)		Methods of improving soil properties by cement, Asphalt,		
15	4 hours (2 theoretical -		Methods of improving soil properties by cement, Asphalt,		

	2 practical)				
Second semester					
1	4 hours (2 theoretical - 2 practical)		Modern methods stabilization of soil (reinforcement of soil)	Theoretical Practical Lectures	Exams, Discussions, and Reports
2	4 hours (2 theoretical - 2 practical)		Modern methods stabilization of soil (reinforcement of soil)		
3	4 hours (2 theoretical - 2 practical)		California Bering ratio (CBR)		
4	4 hours (2 theoretical - 2 practical)		Consolidation in soil		
5	4 hours (2 theoretical - 2 practical)		Consolidation in soil		
6	4 hours (2 theoretical - 2 practical)		Swelling and collapse soil		
7	4 hours (2 theoretical - 2 practical)		Shear strength of the soil		
8	4 hours (2 theoretical - 2 practical)		Unconfined Compression test		
9	4 hours (2 theoretical - 2 practical)		Direct shear test		
10	4 hours (2 theoretical - 2 practical)		Triaxial shear Triaxial compression test		
11	4 hours (2 theoretical - 2 practical)		Triaxial shear Triaxial compression test		
12	4 hours (2 theoretical - 2 practical)		Field shear test		

13	4 hours (2 theoretical - 2 practical)		Types of foundations		
14	4 hours (2 theoretical - 2 practical)		(shallow, piles) foundatio		
15	4 hours (2 theoretical - 2 practical)		Investigation of soil		

11. Course Evaluation

Distribution as follows:
50 marks for coursework (20 theoretical + 20 practical + 10 semester activities).
50 marks for the final exam (40 theoretical + 10 practical).

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Soil Mechanics and Earthworks BY Nias Mohamed Saeed
Main references (sources)	1. Soil mechanics and foundation engineering V.N.S.Murthy 2.Soil mechanics and foundati Dr.B.C.Punmia
Recommended books and references (scientific journals, reports...)	The Iraqi Engineering Journal
Electronic References, Websites	Many websites related to civil engineering.

1. Course Name:
Construction Drawing
2. Course Code:
C2–9
3. Semester / Year:
Semester
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
(180) hours of study at the rate of 6 houre per week / and (12) units
7. Course administrator's name (mention all, if more than one name)
Name: **Amal Jabar Faraj** Email: amal.j.faraj@stu.edu.iq
8. Course Objectives :

Course Objectives	Preparing the student to understa executive drawings and how translate the information into rea for implementation. This is achie by teaching the student construction details and the speci of construction works, as well as principles followed in preparing s of these drawings. Students also ap this knowledge manually and us computers.
9. Teaching and Learning Strategies	
Strategy	1.**Cognitive Strategies** 2.**Active Learning Strategies** 3.**Cooperative Learning Strategies** 4.**Discussion Strategy**

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	6 Practical	-the student knowledge to construction execution drawings and structural work details. -Enabling the student to read execution drawings Empowering and qualifying the student to participate in the preparation of execution drawings -The skill of working with certain engineering drawing software tools as a good alternative to manual drafting i that field.	Introduction to the Basics of Structural Drawing	Practical Lectures	Drawing , homework
2	6 Practical		Drawing the Horizont Plan of a Residential House or Small Building		
3	6 Practical		Drawing Longitudinal and Cross Sections for Floor, Ceiling, and Finishing Layers		
4	6 Practical		General Concept of Sanitary Drawing and Installations Water and Sanitation Systems,		
5	6 Practical		Drawing the Structural Details of Manholes and Connecting Them to the Sanitary Installation Network		
6	6 Practical		Drawing the Structural Details of Septic and Storage Tanks		
7	6 Practical		General Introductory Overview of Concrete and Construction Principles		
8	6 Practical		Concrete Slabs: Their Types (One-Way and Two-Way),		
9	6 Practical		Drawing the Structural Details of Two-Way Solid Slabs		
10	6		Drawing the Structural Details of		

	Practical		One-Way and Two-Way Ribbed Slab		
11	6 Practical		Concrete Beams: The Types and Drawing the Structural Details of Simply Supported Beams with sections		
12	6 Practical		Drawing the Structural Details of Continuous Beams and Sections		
13	6 Practical		Drawing the Structural Details of Cantilever Beams with Their Sections		
14	6 Practical		Introduction with Structural Details and Drawing of precast Beams		
15	6 Practical		Drawing a Horizontal (Key) Plan for Structural Beams		
Second semester					
1	6 Practical		Introduction to Concrete Columns a Their Types,	Practical Lectures	Drawing , homework
2	6 Practical		Drawing the Structural Details and Vertical Sections		
3	6 Practical		Introduction to Foundations: Their Types, and Drawings of Isolated Footings and Wall Foundations.		
4	6 Practical		**Drawing the Structural Details of Combined Footings and the Reinforcement Steel for Each Type.**		
5	6		**Drawing the Structural Details**		

	Practical		**of Cantilever , Continuous and pile Footings,**		
6	6 Practical		Drawing the Structural Details of Pile Foundations and Their Types		
7	6 Practical		Concrete Stairs and Their Types, with Reinforce ment		
8	6 Practical		Drawing the Structural Details Reinforced Concrete Walls for and Basement Walls		
9	6 Practical		Drawing the Structural Details Joints in Buildings		
10	6 Practical		**Precast Construction,**		
11	6 Practical		Steel Structures		
12	6 Practical		Connection of Foundations and Steel Columns		
13	6 Practical		Trusses		
14	6 Practical		Computer Usage and Applications Structural Drawing		
15	6 Practical		Computer Usage and Applications Structural Drawing		

11.Course Evaluation

Distribution as follows:
50 marks for coursework (30 practical + 20 semester activities).
50 marks for the final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Structural Drawing**, Adnan Aziz Dahan
Main references (sources)	**Building and Construction Buildings, Zuhair Sako and Artin Livon**

Recommended books and references (scientific journals, reports...)	The Iraqi Engineering Journal
Electronic References, Websites	Many websites related to c engineering.

1. Course Name:
Surveying 2
2. Course Code:
C2-10
3. Semester / Year:
Semester
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
(90) hours and (6) units
7. Course administrator's name (mention all, if more than one name)
Name: Wasfi Salim Lazim Email: wasfi.salim@stu.edu.iq
8. Course Objectives

Course Objectives	Providing the student with the ab to handle various surveying tools and instruments, both traditional and modern, while developing student's skills in field observa recording measurements, performing surveying calculations and producing maps—thus enab optimal performance when worki on a project related to the course specialization.
9.	
Strategy	• **Cognitive Strategies** • **Active Learning Strategies**

	• **Cooperative Learning Strategies** • **Discussion Strategy**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4 hours (2 theoretical +2 practical)	-Acquiring basic knowledge in surveying science and becoming familiar with various surveying instruments and tools. -The ability to carry out field surveying tasks, produce and implement maps, and perform the necessary surveying calculations for the work.	Identifying the theodolite device, its parts, uses, types, and how to read it.	Theoretical and Practical Lectures	Written Exams, Discussions, and Reports
2			Methods of inspecti and calibrating the device for all types of horizontal a vertical checks		
3			Methods of measur horizontal angles with a theodolite		
4			**Polygons, their types, and main uses.**		
5			Measuring the inter horizontal angles of t polygon and identifying the metho of their correction.		
6			Methods measuring horizontal distances of the si of a polygon.		
7			Methods of drawing the polygon and surveying the details according to appropriate scale.		
8			Learning how to survey cross-sections		

			using the instrument and the measuring tape.		
9			Understanding concept of the vertical andhorizontal components.		
10			methods of height and depression.		
11			**effect of the Earth's curvature and light refraction on the elevations of points.**		
12			The methods reciprocal Leveling reciprocal leveling with mutual observations, and specific applications for each type.		
13			Sources of errors, their classification, and how to eliminate each error.		
14			Longitudinal sections and how to draw them on graph paper.		
15			Cross sections and how to draw them on graph paper.		
Second semester					
1	4 hours (2 theoretical + 2 practical)		The general concept of construction line, benefits, and advantages.		

2	4 hours (2 theoretical + 2 practical)		Explanation of specific laws calculating areas using various methods.	Theoretical and Pract Lectures	Written Exam Discussions, and Reports
3	4 hours (2 theoretical + 2 practical)		Explanation of specific laws calculating valiums using various methods.		
4	4 hours (2 theoretical + 2 practical)		Leveling instrument errors		
5	4 hours (2 theoretical + 2 practical)		Definition of contour lines and their properties.		
6	4 hours (2 theoretical + 2 practical)		Types of contour lines		
7	4 hours (2 theoretical + 2 practical)		Principles of drawing contour lines according approved map scales.		
8	4 hours (2 theoretical + 2 practical)		Practical examples for calculating the volumes of various shapes.		
9	4 hours (2 theoretical + 2 practical)		Using the instrument to calculate areas on various maps.		
10	4 hours (2 theoretical + 2 practical)		Identifying the types of bearings the laws related to them.		
11	4 hours (2 theoretical + 2 practical)		The function of the compass, its main parts, and how to measure angles.		
12	4 hours (2 theoretical + 2 practical)		Using simple maps for the purpose of plotting and		

			surveying them using the compass.		
13	4 hours (2 theoretical + 2 practical)		A general project on constructing a road or drainage canal with the calculation of the required earthworks to complete the project.		
14	4 hours (2 theoretical + 2 practical)		A general project constructing a road or drainage canal with the plotting of horizontal and vertical curves.		
15	4 hours (2 theoretical + 2 practical)		A general project constructing a road or drainage canal with the plotting of horizontal and vertical curves.		

11.Course Evaluation

Distribution as follows:
50 marks for coursework (20 theoretical + 20 practical + 10 semester activities).
50 marks for the final exam (40 theoretical + 10 practical).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	1.Surveying Engineering / Abbas Zidan Khalaf 2.Principles of Surveying Engineering / Juma Dawood 3.Engineering and Cadastral Surveying / Ziad Abdul Jabbar Al-Bakr 4. Surveying engineering / Moffit F .H

Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Numerous websites related to engineering

1. Course Name:
Project
2. Course Code:
C2−11
3. Semester / Year:
Semester/second year
4. Description Preparation Date:
01/06/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
(60) hour (2hour per week for 30 weeks) / and (4) units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Hanadi Abdul Redha Latif Email: hanadi.ridha@stu.edu.iq Name: Dr. Ayad Abdulkhaleq Yahya Email: ayad.alyousuf@stu.edu.iq Name: Abeer Sabri Bshara Email: abeermaj@stu.edu.iq
8. Course Objectives :

Course Objectives	**Students carry out a project within specialized courses in civil engineer technologies, conducting all field and off work, and submitting a final report with necessary calculations, plans, and maps**
9. Teaching and Learning Strategies	
Strategy	• **Cognitive Strategies** • **Active Learning Strategies**

	• **Cooperative Learning Strategies** • **Discussion Strategy**

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1−3	6	1. Enabling the stud to work within grou and fostering team spirit 2. Scientific researc skills and conductin studies and investigations 3. Applying what ha been learned throughout the vario stages of study to bu practical and knowledge-based experience for the future fieldwork	Conducting research and reviewing available references and sources related to the project topic, consulting specialists and relevant departments to gain knowledge in the subject, and writing summaries on how to plan the project and schedule its timings	Practical	Discussions, and Reports
4−7	8		Refining the available information above and preparing the necessary materials, including equipment, devices, boards, symbols, and other accessories. Then, starting the project implementation with its field or laboratory stages first, followed by the drafting stages and the associated calculations, plans, and maps, according to the nature of the project		
8−25	36		Continuing with the field, laboratory, or drafting work specific to the project, in accordance with the guidance of the supervising instructor		
26 −29	8		Carrying out the final calculations, drawings, plans, and maps, and presenting the final		

			project report to the assigned supervisor.		
30	2		Submitting and conducting the final interview for project evaluation		

11. Course Evaluation

Distribution as follows:
100 marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

1. Course Name:
The Crimes of the Ba'ath Regime in Iraq
2. Course Code:
C2−12
3. Semester / Year:
Semester
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Attendance is in-person only.
6. Number of Credit Hours (Total) / Number of Units (Total)
▪ hour per week for 15 weeks = 30 hours / semester
7. Course administrator's name (mention all, if more than one name)
Name: Abbas Bressam Email:
8. Course Objectives

Course Objectives	1. To embody the vision, mission, and objectives of Southern Technical University, and to implement best educational practices with a focus on quality assurance, performance enhancement, and continuous improvement. **2**. To enable students to explore the crimes committed by the former Ba'ath Party regime in Iraq, for which the regime's leaders and affiliates were prosecuted by the Iraqi High Criminal Court**.** **3.** To transfer knowledge, language skills, academic research writing, and scientific achievement through student- and instructor-centered activities**.**

9. Teaching and Learning Strategies

Strategy	1. **Cognitive Strategies** 2. **Active Learning Strategies** 3. **Cooperative Learning Strategies** 4. **Discussion Strategy**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical	1. Expanding students' understanding to grasp the concept of crimes 2. Informing students about the crimes of the Ba'ath regime 3. Developing students' abilities to contribute to spreading awareness of the crimes committed by the Ba'ath regime	The Concept of Crimes and Their Types	theoretical lecture	Discussion , exam
2	2 theoretical		Types of International Crimes		
3	2 theoretical		The Crime of Repressing the 1991 Shaaban Uprising		
4	2 theoretical		Psychological Crimes		
5	2 theoretical		Psychological Stress Mechanism		
6	2 theoretical		Effects Psychological Crimes		
7	2 theoretical		Infringements of Iraqi Law		
8	2 theoretical		Some Rulings Psychological Violations		
9	2 theoretical		Environmental Crimes		

10	2 theoretical		The Drying of Marshes		
11	2 theoretical		The City of Halabja		
12	2 theoretical		Crimes Related Mass Graves		
13	2 theoretical		Events Spanning from 1979 to 2003		
14	2 theoretical		The Events of Shaaban Uprising		
15	2 theoretical		Genocidal Mass Graves of the Victims of the Shaaban Uprising		

11. Course Evaluation

40 marks for coursework (30 theoretical + 10 semester activities).
60 marks for the final exam theoretical

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Textbook: Crimes of the Ba'ath Regime in Iraq Archive of the Political Prisoners Foundation Archive of the Martyrs Foundation
Main references (sources)	Violations of Iraqi Laws Environmental Crimes Mass Graves
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	