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

2024-2023

Introduction:

The educational program is considered a coordinating and organizing package of academic courses that encompasses procedures and experiences arranged in the form of an academic syllabuses. The main goal of these syllabuses is to improve and build graduates' skills to make them ready for the job market. The program is annually reviewed and evaluated through internal or external audit procedures and programs like the External Examiner Program.

The academic program description offers a brief summary of the main features of the program and its courses. The program indicates the skills offered to students that are developed based on the goals of the academic program. This description represents a cornerstone of the requirements of program accreditation, so it is written by the teaching staff under the supervision of scientific committees of the scientific departments.

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

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

Concepts and terminology:

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

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes of that the student is expected to achieve, demonstrating whether he or she has widely benefited from the available learning opportunities. It is derived from the program description.

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

Program Mission: Briefly outlines the goals and activities necessary to achieve it and determines the program's development paths and directions.

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

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

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

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

Academic Program Description Form

University Name: Al-Furat Al-Awsat Technical University

Faculty/Institute: Engineering Technical College/ An najaf

Scientific Department: Building & Construction Technical Engineering Department

Academic or Professional Program Name: Bachelor of Technical Engineering

Final Certificate Name: Bachelor's degree in building and construction Technical Engineering

Academic System: .....

Description Preparation Date: 1/4/2024

File Completion Date: 1/4/2024

Signature:

Head of Department Name: Dr. Kamal Ali Mohammed

Date:

Signature:

Scientific Associate Name: Dr. Basil Noori Abed

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 28/4/2024

Signature:

Bassam Abdusahib

Approval of the Dean

1. Program Vision

The vision of the Department of Building and Construction Technical Engineering is to be one of the units concerned with developing technical engineering education in its major in Iraq by providing a distinguished and renewed program that is recognized at the national and international levels. It should provide services and research that enrich the profession and advance the society and a high-quality educational engineering environment in order to provide highly qualified technical engineers for the field of work to build and serve their country.

2. Program Mission

Preparing qualified graduates to work in various technical engineering jobs in the field of building and construction engineering by providing them with a solid foundation in mathematics, basic sciences, and technical engineering sciences in their major. The program mission also aims to provide high-quality programs in education, scientific research, and community service, and helps students to develop their capabilities and hone their scientific and technical skills in order to enable them to successfully compete within the labor market.

3. Program Objectives

The program aims to provide the student with a contemporary practical and academic experience that enriches his or her technical engineering skills in order to distinguish him/ her within the practical life. That general objective should lead to qualify technical engineers, in the major of building and construction technical engineering, who are able, in high efficiency, to do the following:

1- Conduct all field, on-site, and laboratory destructive and non-destructive tests, required for all construction materials and soil by reading their results and conforming their compliance with standard specifications. Reading,

preparing and implementing construction and architectural designs, calculating their quantities and costs, and concluding contracts for projects by using the computer with high efficiency.

2- Applying methods of design, implementation, management, and organizing workers, materials, and machines to achieve the specific goals of a project.

3- Maintaining buildings, roads and other projects and controlling the issue of environmental pollution as it is one of the most significant challenges of the era.

4- Using modern surveying equipment extensively to prepare topographic plans and profiles, divide lands, determine road paths, and draw longitudinal and cross-sections.

5- Organizing and managing various construction projects using modern methods that based on different computer software, and through adopting professional methods used in construction work, in addition to studying construction machines in terms of their productivity, operation costs, and methods of use.

4. Program Accreditation

Does the program have program accreditation? And from which agency?

No

5. Other external influences

Is there a sponsor for the program?

No

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	5	11	11%	
College Requirements	6	27	13%	
Department Requirements	35	202	76%	
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours			
			theoretical	practical	Lab.	Tutorial
One/1st	ATU16011	Engineering mechanics	4	0		2
	ATU16012	Engineering drawing	2	3		
	ATU16013	Mathematics	4	0		2
	ATU16014	Engineering physics	2	0		2
	ATU16015	Human rights & democracy	2	0		
	ATU16016	English language skills	1	0		
	ATU16017	Arabic Language	1	0		
One/2nd	ATU16021	Construction material	4		3	
	ATU16022	Plane Surveying	4		4	
	ATU16023	Engineering Geology	2		0	
	ATU16024	Descriptive Geometry	2		0	1
	ATU16025	Computer Principles	1		2	
	ATU16026	Workshop	2		0	
Two/3rd	ATU16031	Concrete Technology	3		4	0
	ATU16032	Strength of Materials	4		0	2
	ATU16033	Applied Surveying	2		3	
	ATU16034	Probability & Statistics	2		0	1
	ATU16035	Advanced mathematics	2		0	2
Two/4th	ATU16041	Building Construction	4		0	

	ATU16042	Engineering Surveying	4		3	
	ATU16043	Manufacturing Techniques of Construction	2		1	
	ATU16044	materials	2		3	
	ATU16045	Fluid mechanics	2		2	
	ATU16046	Concrete Technology practices	2		0	
		The crimes of the extinct Baath Party				
Three/5th	ATU16051	Reinforced Concrete	4		0	2
	ATU16052	Structural analysis theory	4		0	2
	ATU16053	Soil mechanics	2		3	
	ATU16054	Construction Management	2		0	1
	ATU16055	Pavement Engineering	3		2	
Three/6th	ATU16061	Advanced Concrete Technology	4		4	
	ATU16062	Masonry building	3		0	
	ATU16063	Construction Equipment	2		0	1
	ATU16064	Engineering & Numerical analysis	3		0	2
	ATU16065	Transportation Engineering	3		3	
Four/7th	ATU16071	Design of Reinforced Concrete buildings	4		0	2
	ATU16072	Foundation Engineering	2		0	2
	ATU16073	Construction drawing	0		3	
	ATU16074	Sustainable Construction materials	2		2	
	ATU16075	Design of steel structures	4		0	2
	ATU16076	Innovative project	1		1	
Four/8th	ATU16081	Materials for heritage buildings	2		2	
	ATU16082	Quantity surveying & Estimation	2		0	2
	ATU16083	Safety in Construction	1		2	
	ATU16084	Computer Aided design of structure	2		3	
	ATU16085	Repairs & Rehabilitation of structures	2		2	
	ATU16086	Environmental Engineering	3		2	

8. Expected learning outcomes of the program

A-Knowledge	Outcomes
A1- Theoretical and practical knowledge in different applications of building and construction engineering. A2- Theoretical and practical knowledge in basics of water	A1- Gaining theoretical knowledge in applications of building and construction engineering. A2- Gaining theoretical and practical knowledge in basics of water resources, environmental, geo-techniques and project management engineering.

resources, environmental, geo-techniques and project management engineering. A3- Reading and understanding maps and design drawings for different applications of building and construction engineering. A4- Performing the theoretical calculations for the different problems in the major.	A3- The ability to read and understand maps and design drawings for different applications of building and construction engineering. A4- The ability to perform the theoretical calculations for the different problems in the major.
B-Skills	**Outcomes**
B1- Conducting tests for construction materials including soil investigations and gaining the knowledge for their manufacturing techniques. B2- Conducting field surveys for different construction projects. B3- Preparation of structural and topographic drawings using different computer applications. B4- Basics of English and Arabic languages and management-operating of construction equipment.	Gaining the skills for: B1- Tests and manufacturing of construction materials and soil investigations. B2- Field surveys for different construction projects. B3- Using different computer applications for preparation of structural and topographic drawings. B4- Basics of English and Arabic languages as well as management-operating of construction equipment.
C-Ethics	**Outcomes**
C1- Applying of knowledge and engineering skills for design and construction of safe and sustainable structures. C2- Adherence of professional ethics and social responsibility in practicing of engineering career and	C1- Gaining of knowledge for achieving safety and sustainability in construction project of infrastructure. C2- Characterizing with professional ethics of engineering and dealing with the other according to human rights. C3- Gaining the knowledge of occupational safety in construction projects.

understanding of human rights and democracy in Iraq and the world. C3- Considering all occupational safety requirements and spreading of engineering culture for that. C4- Strengthening of sustainability and environment conservation during the conducting of construction projects.	C4- Gaining the knowledge to achieve sustainability and environment conservation during the conducting of construction projects.

9. Teaching and Learning Strategies

Lectures, tutorials, reports, homework, laboratory, workshop, summer training, practicing tours.

10. Evaluation methods

Theoretical and practical exams (mid and final) as well as quizzes, seminars and daily assessment.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Civil	Highways				1
Professor	Civil	Building materials				1
Assistant Professor	Civil	Building materials			1	

Lecturer	Civil	Structures			3	
Lecturer	Civil	Building materials			1	
Lecturer	Civil	Water resources			3	
Lecturer	Management	Management				1
Lecturer	Civil	Highways				1
Lecturer	Civil	Environment				1
Lecturer	Civil	Project management				1
Assistant Lecturer	Civil	Construction materials			1	
Assistant Lecturer	Civil	Structures			2	
Assistant Lecturer	Civil	Water resources			1	
Assistant Lecturer	Geography	Geography			1	
Assistant Lecturer	Materials	Materials			1	
Assistant Lecturer	Mathematics	Mathematics			1	1

Professional Development

Mentoring new faculty members

All faculty members; visitors, full-time, and part-time faculty members must pass training course of education methods, Arabic-language integrity course and the test of teaching eligibility. Also, they encourage to work on research and publish research papers.

Professional development of faculty members

All faculty members are encouraged to have professional development by participating in conferences, workshops and seminars in and out of the institute. They are encouraged also, to publish research papers.

12. Acceptance Criterion

Acceptance criterion for the department of construction and building techniques include general regulations of enrollment, development plans, student choice. However, the department accepts only scientific branch students of preparatory studies.

13. The most important sources of information about the program

- Curriculums and syllabuses prepared firstly by department of construction and building techniques in technical engineering college of Mosul.
- The specialized committees in the department, college and the university.
- Suggestions of faculty members within 20% of the syllabus for each subject according to the work market requirements and the development in the world.
- The program of academic accreditation.

14. Program Development Plan

The department of building and construction techniques enhances the skills and talents of his students by encourage them to participate in the different activities and events held in the university.

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
First/1st	ATU16011	Engineering mechanics	Basic	⊛			⊛					⊛			
	ATU16012	Engineering drawing	Basic							⊛				⊛	
	ATU16013	Mathematics	Basic			⊛	⊛								
	ATU16014	Engineering physics	Basic	⊛			⊛					⊛			
	ATU16015	Human rights & democracy	Basic										⊛		
	ATU16016	English language skills	Basic								⊛				
	ATU16017	Arabic Language	Basic								⊛				
First/2nd	ATU16021	Construction materials	Basic	⊛				⊛							
	ATU16022	Plane Surveying	Basic			⊛			⊛	⊛					
	ATU16023	Engineering Geology	Basic	⊛	⊛										

	ATU16024	Descriptive Geometry	Basic		⊛					⊛					
	ATU16025	Computer Principles	Basic						⊛						
	ATU16026	Workshops	Basic	⊛				⊛							
Second/3rd	ATU16031	Concrete Technology	Basic	⊛				⊛				⊛		⊛	⊛
	ATU16032	Strength of Materials	Basic	⊛	⊛		⊛								
	ATU16033	Applied Surveying	Basic			⊛			⊛	⊛					
	ATU16034	Engineering Statistics	Basic	⊛			⊛								
	ATU16035	Advanced mathematics	Basic	⊛			⊛								
Second/4th	ATU16041	Building construction	Basic	⊛								⊛			
	ATU16042	Engineering Surveying	Basic			⊛			⊛	⊛					
	ATU16043	Manufacturing Techniques of Construction materials	Basic	⊛				⊛							
	ATU16044	Fluid mechanics	Basic		⊛										
	ATU16045	Concrete Technology practices	Basic	⊛				⊛				⊛		⊛	⊛

	ATU16046	The crimes of the extinct Baath Party	Basic										⊛		
Three/5th	ATU16051	Reinforced Concrete	Basic	⊛	⊛		⊛									
	ATU16052	Theory of structures analysis	Basic	⊛	⊛		⊛									
	ATU16053	Soil mechanics	Basic		⊛			⊛								
	ATU16054	Construction Management	Basic		⊛											
	ATU16055	Pavement Engineering	Basic		⊛											
Three/6th	ATU16061	Advanced Concrete Technology	Basic	⊛				⊛				⊛		⊛	⊛	
	ATU16062	Masonry buildings	Basic	⊛				⊛				⊛			⊛	
	ATU16063	Construction Equipment	Basic				⊛				⊛					
	ATU16064	Engineering & Numerical analysis	Basic	⊛			⊛									
	ATU16065	Highways Engineering	Basic		⊛				⊛							
Four/7th	ATU16071	Design of Reinforced Concrete structures	Basic	⊛	⊛		⊛									
	ATU16072	Foundation Engineering	Basic	⊛	⊛		⊛									

	ATU16073	Construction drawing	Basic			⊛				⊛						
	ATU16074	Sustainable Construction materials	Basic	⊛								⊛				
	ATU16075	Design of steel structures	Basic	⊛	⊛		⊛									
	ATU16076	Innovative engineering project	Basic	⊛					⊛							
Four/8th	ATU16081	Materials for heritage buildings	Basic	⊛								⊛				
	ATU16082	Quantity surveying & Estimation	Basic	⊛			⊛									
	ATU16083	Safety in Construction	Basic									⊛	⊛		⊛	
	ATU16084	Computer Aided design of structure	Basic	⊛			⊛			⊛						
	ATU16085	Repairs & Rehabilitation of structures	Basic	⊛				⊛					⊛			
	ATU16086	Environmental Engineering	Basic									⊛			⊛	

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

Course Description Form

1. Course Name: Design of Steel Structures

2. Course Code: ATU16075

3. Semester / Year: First / Four

4. Description Preparation Date: 1-4-2024

5. Available Attendance Forms: Lecture and tutorial

6. Number of Credit Hours (Total) / Number of Units (Total): 8 / 750

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

Name: Dr. Atheer Hilal Mahdi
Email: atheer.helal.cnj@atu.edu.iq

8. Course Objectives

Course Objectives	• **To design steel structures** • **To connect parts of steel structures** • **To construct sustainable steel structures**

9. Teaching and Learning Strategies

Strategy	Lecture, Tutorial, Report, Practical tour.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-4	12	To know how to design steel tension members	Tension member	Lecture Tutorial	Quizzes Mid and final exams

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University: Al-Furat Al-Awsat Technical University
College: Engineering Technical College/ NAJAF
Department: Building & Construction Eng.Technologies
Name lecturer: dania abdu alameer
Scientific title: Lecturer
Academic qualification: master
Work location: Building & Construction Eng.Technologies

Course Description Form 2023/2024

1- Course Name
English for Academic U.
2- Course Code
ATU22016
3- Semester / Year
2024/2023
4- Description Preparation Date:
2024/6/1
5- Available Attendance Forms:
Lectures in the presence of students and online if necessary
6- Number of study hours (total)/number of units (total)
15 week / 2 units
7- Name of the course administrator (if there is more than one teaching staff, all of their names will be mentioned
dania abdu alameer

8. Expected learning outcomes of the program		
Knowledge and understanding		
A1	Ability to apply knowledge in mathematics, science, and engineering.	√
A2	Understand the professional and ethical responsibilities of the field of specialization.	√
A3	Ability to evaluate course outcomes with faculty, industry and professional practitioners, as well as employers and graduate students to improve them	√

A4	Teaching leadership skills and the value of quality commitment, ethical behavior and respect for others	√
Subject–specific skills		
B1	Ability to work and integrate into multidisciplinary teams	√
B2	Ability to design and conduct experiments as well as analyze and interpret data.	√
B3	The ability to use modern techniques, engineering skills and tools to practice engineering.	√
B4	Ability to identify and formulate engineering problems in the field of specialization	√
thinking skills		
C1	The ability to communicate effectively with those concerned with the field of specialization	√
C2	Recognizing the need and ability to engage in lifelong learning.	√
C3	Knowledge of contemporary issues in the field of specialization	√
C4	The broad learning necessary to understand the impact of engineering solutions on global economic, environmental and social problems	√
Generic and transferable skills (other skills related to employability and personal development)		
D1	Ability to manage and work on examinations in the fields of civil engineering and all sectors	√
D4	The ability to adapt to similar specializations (Water resources engineering, environmental engineering, architecture, renewable energies, ……)	√

9. Teaching and Learning Strategies

Strategies	Encourage students' participation in solving exercises, while improving and expanding their critical thinking skills. This will be accomplished through interactive classroom and tutorial programs and by looking at types of simple experiments that include some sampling activities of interest to students.

10- Outcomes of the bachelor's program in technical engineering according to the guidelines of the National Council for Programmatic Accreditation for Technical Engineering Education, the Academic Accreditation for Engineering and Technology (ABET), and the International Engineering Alliance (IEA).	
a - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
b - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
c- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	
d- Designs systems, components, or processes for large-scale engineering problems that fit the objectives of the educational program.	
e- Works effectively as a member or leader in a specialized engineering team.	√
f- Identifies, analyzes and solves large-scale engineering problems.	√

g - Identify and utilize appropriate technical literature as well as apply written documents, oral communications, and graphics in both technical and non-technical environments.	√
h- Participates in self-directed continuing professional development.	√
i - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
j - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
k- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	

11. Objectives of the educational program: Due to the rapid scientific and technological progress in the field of English for Academic U., the Building Technology Engineering Department is working to achieve clear strategic objectives that will help it achieve a prominent position within the academic communities, and they are becoming clear.			
A- Maintaining and improving the quality of the curriculum	A1	Introducing scientifically and internationally updated study materials in the study of English for Academic U.the specialty of and keeping pace with rapid scientific development through direct contact with decision-makers for construction engineering in all parts of the world and direct contact with colleges and institutes specialized in construction engineering .	√
	A2	Continuous evaluation and development of curricula.	√
	A3	Linking student projects and research to community needs.	√
	A4	Expanding students' concepts with field visits , seminars , and training in projects and companies in the building and construction sector.	√
B - Modernizing and opening laboratories by providing them with the latest technical equipment and equipment in the field of specialization and managing them with skilled technicians.	B1	Students use the latest modern laboratory and programming technologies	√
C- Providing the best university environment for faculty and students	C1	Providing air-conditioned classrooms equipped with the latest display devices, providing offices for teachers, green spaces, a club, and a library.	√
D- Maintaining the technical development of faculty members	D1	Encouraging participation and effective scientific visits in conferences and technical meetings, especially with the administrations of Iraqi companies, state and international departments, and international training companies.	√
	D2	Continuous review and evaluation of student and faculty activities	√
	D3	Continuous review and evaluation of student and faculty activities Encouraging students' initiatives and achievements in various academic, artistic and religious fields with the teaching staff	√
E- Knowledge production	E1	Conducting distinguished theoretical and applied research for students with the faculty	√
	E2	Encouraging scientific publishing and stimulating the collective work of research groups from different disciplines	√
	E3	Striving to increase sources of funding for practical and theoretical research for students and faculty through publishing in local and international engineering journals	√

F- Initiatives	F1	Initiatives to reduce administrative routine and facilitate work procedures through educational guidance and developing the relationship between students and teachers.	√
G- Activating and strengthening ties with public government agencies and the private sector	G1	Organizing conferences, seminars and educational courses	√
	G2	Encouraging consulting work and providing services at the professional level in all engineering specializations (technology incubator)	√

12. Course structure

Week	Hours	Required learning outcomes		Name of the unit or topic	Learning method		Direct asses metho
1-6	12	Knowledge and understanding	√	Able to identify linking Ideas: Present and Past Irregular Plurals, Consonants, There was/were Identify countable and Uncountable Nouns, Imperatives Healthy Living and Able to identify can for ability Could and Couldn't Skills at work Able to identify can for requests Adjectives and Adverbs Able to identify describing People, Present Continuous and Adjectives	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
7-8	4	Knowledge and understanding	√	Demonstrates knowledge about question for, 'information, prepositions: (at, in, on, to) Mid-term Exam Able to identify (Have to don't have to Housework, home, school & work obligations)	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
9-13	10	Knowledge and understanding	√	Demonstrates knowledge about Offering and Inviting Why..? Would you like to...? Let's...? Free time activities Able to identify (Be going to + infinitive for plans) Able to identify (Be going to weak forms: Maybe/perhaps)	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation

14-15	4	Knowledge and understanding	√	Able to identify {Past Simple have to) Demonstrates knowledge about Transport, Prepositions of movement Address Demonstrates knowledge about (Writing Activities) Writing short essay Preparatory week before the final Exam	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation

13. Course evaluation: Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

quizzes	homework	class activities	mid-exam	Final/theoretical exam
20 %	10%	10%	10%	50%

	Required textbooks
	Main references (sources)
	Recommended supporting books and references (scientific journals, reports....)
	Electronic references, Internet sites

Ministry of Higher Education and Scientific Research
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Accreditation Department

University: Al-Furat Al-Awsat Technical University
College: Engineering Technical College/ NAJAF
Department: Building & Construction Eng.Technologies
Name lecturer: Kamal Ali Mohammed
Scientific title: Lecturer
Academic qualification: Doctorate
Work location: Building & Construction Eng.Technologies

Course Description Form 2023/2024

8- Course Name
Human Rights & Democracy
9- Course Code
ATU22015
10- Semester / Year
2024/2023
11- Description Preparation Date:
2024/6/1
12- Available Attendance Forms:
Lectures in the presence of students and online if necessary
13- Number of study hours (total)/number of units (total)
200 hours-15 week / 4units
14- Name of the course administrator (if there is more than one teaching staff, all of their names will be mentioned
Dr. kamala li mohammed

10. Expected learning outcomes of the program		
Knowledge and understanding		
A1	Ability to apply knowledge in mathematics, science, and engineering.	√
A2	Understand the professional and ethical responsibilities of the field of specialization.	√
A3	Ability to evaluate course outcomes with faculty, industry and professional practitioners, as well as employers and graduate students to improve them	√

A4	Teaching leadership skills and the value of quality commitment, ethical behavior and respect for others	√
Subject–specific skills		
B1	Ability to work and integrate into multidisciplinary teams	√
B2	Ability to design and conduct experiments as well as analyze and interpret data.	√
B3	The ability to use modern techniques, engineering skills and tools to practice engineering.	√
B4	Ability to identify and formulate engineering problems in the field of specialization	√
thinking skills		
C1	The ability to communicate effectively with those concerned with the field of specialization	√
C2	Recognizing the need and ability to engage in lifelong learning.	√
C3	Knowledge of contemporary issues in the field of specialization	√
C4	The broad learning necessary to understand the impact of engineering solutions on global economic, environmental and social problems	√
Generic and transferable skills (other skills related to employability and personal development)		
D1	Ability to manage and work on examinations in the fields of civil engineering and all sectors	√
D4	The ability to adapt to similar specializations (Water resources engineering, environmental engineering, architecture, renewable energies, ……)	√

11. Teaching and Learning Strategies

Strategies	Encourage students' participation in solving exercises, while improving and expanding their critical thinking skills. This will be accomplished through interactive classroom and tutorial programs and by looking at types of simple experiments that include some sampling activities of interest to students.

10- Outcomes of the bachelor's program in technical engineering according to the guidelines of the National Council for Programmatic Accreditation for Technical Engineering Education, the Academic Accreditation for Engineering and Technology (ABET), and the International Engineering Alliance (IEA).	
a - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
b - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
c- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	
d- Designs systems, components, or processes for large-scale engineering problems that fit the objectives of the educational program.	
e- Works effectively as a member or leader in a specialized engineering team.	√
f- Identifies, analyzes and solves large-scale engineering problems.	√

g - Identify and utilize appropriate technical literature as well as apply written documents, oral communications, and graphics in both technical and non-technical environments.	√
h- Participates in self-directed continuing professional development.	√
i - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
j - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
k- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	

15. Objectives of the educational program: Due to the rapid scientific and technological progress in the field of Human Rights & Democracy, the Building Technology Engineering Department is working to achieve clear strategic objectives that will help it achieve a prominent position within the academic communities, and they are becoming clear.

A- Maintaining and improving the quality of the curriculum	A1	Introducing scientifically and internationally updated study materials in the study of the specialty of Human Rights & Democracy and keeping pace with rapid scientific development through direct contact with decision-makers for construction engineering in all parts of the world and direct contact with colleges and institutes specialized in construction engineering .	√
	A2	Continuous evaluation and development of curricula.	√
	A3	Linking student projects and research to community needs.	√
	A4	Expanding students' concepts with field visits , seminars , and training in projects and companies in the building and construction sector.	√
B - Modernizing and opening laboratories by providing them with the latest technical equipment and equipment in the field of specialization and managing them with skilled technicians.	B1	Students use the latest modern laboratory and programming technologies	√
C- Providing the best university environment for faculty and students	C1	Providing air-conditioned classrooms equipped with the latest display devices, providing offices for teachers, green spaces, a club, and a library.	√
D- Maintaining the technical development of faculty members	D1	Encouraging participation and effective scientific visits in conferences and technical meetings, especially with the administrations of Iraqi companies, state and international departments, and international training companies.	√
	D2	Continuous review and evaluation of student and faculty activities	√
	D3	Continuous review and evaluation of student and faculty activities Encouraging students' initiatives and achievements in various academic, artistic and religious fields with the teaching staff	√
E- Knowledge production	E1	Conducting distinguished theoretical and applied research for students with the faculty	√
	E2	Encouraging scientific publishing and stimulating the collective work of research groups from different disciplines	√
	E3	Striving to increase sources of funding for practical and theoretical research for students and faculty through publishing in local and international engineering journals	√

F- Initiatives	F1	Initiatives to reduce administrative routine and facilitate work procedures through educational guidance and developing the relationship between students and teachers.	√
G- Activating and strengthening ties with public government agencies and the private sector	G1	Organizing conferences, seminars and educational courses	√
	G2	Encouraging consulting work and providing services at the professional level in all engineering specializations (technology incubator)	√

16. Course structure

Week	Hours	Required learning outcomes		Name of the unit or topic	Learning method		Direct asses metho
1-6	12	Knowledge and understanding	√	حقوق الانسان ، تعريفها ، اهدافها حقوق الانسان في الحضارات القديمة وخصوصا حضارة وادي الرافدين حقوق الانسان في الشرائع السماوية مع التركيز على حقوق الانسان في الاسلام حقوق الانسان في التاريخ المعاصر والحديث : الاعتراف الدولي بحقوق الانسان منذ الحرب العالمية الأولى وعصبة الامم المتحدة الاعتراف الاقليمي بحقوق الانسان : الاتفاقية الاوربية لحقوق الانسان 1950 ، الاتفاقية الامريكية لحقوق الانسان 1969 ، الميثاق الافريقي لحقوق الانسان 1981 ، الميثاق العربي لحقوق الانسان 1994 المنظمات غير الحكومية وحقوق الانسان (اللجنة الدولية للصليب الاحمر ، منظمة العفو الدولية ، منظمة مراقبة حقوق الانسان ، المنظمات الوطنية لحقوق الانسان) حقوق الانسان في الدساتير العراقية بين النظرية والواقع العلاقة بين حقوق الانسان والحريات العامة : 1- في الاعلان العالمي لحقوق الانسان 2- في المواثيق الاقليمية والدساتير الوطنية حقوق الانسان الاقتصادية والاجتماعية والثقافية و حقوق الانسان المدنية والسياسية	The direct method is through lectures.	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of specialization.	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
7-8	4	Knowledge and understanding	√	حقوق الانسان الحديثة : الحقائق في التنمية ، الحق في البيئة النظيفة ، الحق في التضامن ، الحق في الدين ضمانات احترام وحماية حقوق الانسان على الصعيد الوطني ، الضمانات في الدستور والقوانين ، الضمانات في مبدأ سيادة القانون الضمانات في الرقابة الدستورية ، الضمانات في حرية الصحافة والرأي العام ، دور المنظمات غير الحكومية في احترام وحماية حقوق الانسان ضمانات واحترام وحماية حقوق الانسان على الصعيد الدولي : – دور الأمم المتحدة ووكالاتها المتخصصة في توفير الضمانات – دور المنظمات الاقليمية (الجامعة العربية ، الاتحاد الأوربي ، الاتحاد الافريقي ، منظمة الدول الأمريكية ، منظمة آسيان) دور المنظمات الدولية الاقليمية غير الحكومية والرأي العام في احترام وحماية حقوق الانسان	The direct method is through lectures.	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of specialization.	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
9-13	10	Knowledge and understanding	√	النظرية العامة للحريات : أصل الحقوق والحريات ، موقف المشروع من الحقوق والحريات المعلنة ، استخدام مصطلح الحريات العامة القاعدة الشرعية لدولة القانون تنظيم الحريات العامة من قبل السلطات العامة المساواة : التطور التاريخي لمفهوم المساواة التطور الحديث لفكرة المساواة – المساواة بين الجنسين	The direct method is through lectures.	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and	√	Oral exams

				المساواة بين الأفراد حسب معتقداتهم وعنصرهم الديمقراطية ، تعريفها ، أنواعها مفاهيم الديمقراطية الديمقراطية في العالم الثالث الأنظمة الديمقراطية في العالم مفهوم الحريات ، تصنيف الحريات العامة الحريات الأساسية ، الحريات الفكرية ، الحريات الاقتصادية و الاجتماعية حرية الأمن و الشعور بالاطمئنان حرية الذهاب و الإياب حرية التعليم حرية الصحافة حرية التجمع	discussing them collectively		
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
14-15	4	Knowledge and understanding	√	حرية الجمعيات حرية العمل حق التملك حرية التجارة والصناعة حرية المرأة الأحزاب السياسية والحريات العامة التقدم العلمي والتقني والحريات العامة مستقبل الحريات العامة	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation

11. Course evaluation: Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

quizzes	homework	class activities	mid-exam	Final/theoretical exam
20 %	10%	10%	10%	50%

	Electronic references, Internet sites

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

University: Al-Furat Al-Awsat Technical University
College: Engineering Technical College/ NAJAF
Department: Building & Construction Eng.Technologies
Name lecturer: noor hashim
Scientific title: Assistant Lecturer
Academic qualification: master
Work location: Building & Construction Eng.Technologies

Course Description Form 2023/2024

15-	Course Name
	: Engineering Drawing
16-	Course Code ATU22012
17-	Semester / Year
	2024/2023
18-	Description Preparation Date:
	2024/6/1
19-	Available Attendance Forms:
	Lectures in the presence of students and online if necessary
20-	Number of study hours (total)/number of units (total)
	6 units/15 week
21-	Name of the course administrator (if there is more than one teaching staff, all of their names will be mentioned
	Name ; noor hashim

12. Expected learning outcomes of the program		
Knowledge and understanding		
A1	Ability to apply knowledge in mathematics, science, and engineering.	√
A2	Understand the professional and ethical responsibilities of the field of specialization.	√

A3	Ability to evaluate course outcomes with faculty, industry and professional practitioners, as well as employers and graduate students to improve them	√
A4	Teaching leadership skills and the value of quality commitment, ethical behavior and respect for others	√
Subject-specific skills		
B1	Ability to work and integrate into multidisciplinary teams	√
B2	Ability to design and conduct experiments as well as analyze and interpret data.	√
B3	The ability to use modern techniques, engineering skills and tools to practice engineering.	√
B4	Ability to identify and formulate engineering problems in the field of specialization	√
thinking skills		
C1	The ability to communicate effectively with those concerned with the field of specialization	√
C2	Recognizing the need and ability to engage in lifelong learning.	√
C3	Knowledge of contemporary issues in the field of specialization	√
C4	The broad learning necessary to understand the impact of engineering solutions on global economic, environmental and social problems	√
Generic and transferable skills (other skills related to employability and personal development)		
D1	Ability to manage and work on examinations in the fields of civil engineering and all sectors	√
D4	The ability to adapt to similar specializations (Water resources engineering, environmental engineering, architecture, renewable energies, ……)	√

13. Teaching and Learning Strategies

Strategies	Encourage students' participation in solving exercises, while improving and expanding their critical thinking skills. This will be accomplished through interactive classroom and tutorial programs and by looking at types of simple experiments that include some sampling activities of interest to students.

10- Outcomes of the bachelor's program in technical engineering according to the guidelines of the National Council for Programmatic Accreditation for Technical Engineering Education, the Academic Accreditation for Engineering and Technology (ABET), and the International Engineering Alliance (IEA).	
a - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
b - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
c- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	
d- Designs systems, components, or processes for large-scale engineering problems that fit the objectives of the educational program.	

e- Works effectively as a member or leader in a specialized engineering team.	√
f- Identifies, analyzes and solves large-scale engineering problems.	√
g - Identify and utilize appropriate technical literature as well as apply written documents, oral communications, and graphics in both technical and non-technical environments.	√
h- Participates in self-directed continuing professional development.	√
i - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
j - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
k- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	

13. *Objectives of the educational program: Due to the rapid scientific and technological progress in the field of : Engineering Drawing & Descriptive Geometry, the Building Technology Engineering Department is working to achieve clear strategic objectives that will help it achieve a prominent position within the academic communities, and they are becoming clear.*

A- Maintaining and improving the quality of the curriculum	A1	*Introducing scientifically and internationally updated study materials in the study of the specialty of Engineering Drawing & Descriptive Geometry and keeping pace with rapid scientific development through direct contact with decision-makers for construction engineering in all parts of the world and direct contact with colleges and institutes specialized in construction engineering .*	√
	A2	Continuous evaluation and development of curricula.	√
	A3	Linking student projects and research to community needs.	√
	A4	Expanding students' concepts with field visits , seminars , and training in projects and companies in the building and construction sector.	√
B - Modernizing and opening laboratories by providing them with the latest technical equipment and equipment in the field of specialization and managing them with skilled technicians.	B1	Students use the latest modern laboratory and programming technologies	√
C- Providing the best university environment for faculty and students	C1	Providing air-conditioned classrooms equipped with the latest display devices, providing offices for teachers, green spaces, a club, and a library.	√
D- Maintaining the technical development of faculty members	D1	Encouraging participation and effective scientific visits in conferences and technical meetings, especially with the administrations of Iraqi companies, state and international departments, and international training companies.	√
	D2	Continuous review and evaluation of student and faculty activities	√
	D3	Continuous review and evaluation of student and faculty activities Encouraging students' initiatives and achievements in various academic, artistic and religious fields with the teaching staff	√
E- Knowledge prduction	E1	Conducting distinguished theoretical and applied research for students with the faculty	√

	E2	Encouraging scientific publishing and stimulating the collective work of research groups from different disciplines	√
	E3	Striving to increase sources of funding for practical and theoretical research for students and faculty through publishing in local and international engineering journals	√
F- Initiatives	F1	Initiatives to reduce administrative routine and facilitate work procedures through educational guidance and developing the relationship between students and teachers.	√
G- Activating and strengthening ties with public government agencies and the private sector	G1	Organizing conferences, seminars and educational courses	√
	G2	Encouraging consulting work and providing services at the professional level in all engineering specializations (technology incubator)	√

14. Course structure											
Week	Hours	Required learning outcomes		Name of the unit or topic	Learning method		Direct assessment method		Indirect assessment method	
1-4	24	Knowledge and understanding	√	• **Introduction to defined the engineering drawing and introduction about AutoCAd software in engineering drawing** **Windows setting, limits, grid, snap, object snap** • **Draw menu, line, polyline, ray, construction line** **Polygon, arc, circle, rectangle, ellipse** • **Modify-part one** **Modify -part two** • **Dimensions** **Hatching** • **Text** **Layers** • **Perspective** **Ortho graphic projection** **The first and third angle projection method**	The direct method is .through lectures	√	Written tests		Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant		Interviews or questionnaires to survey student .opinions	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

5-8	24	Knowledge and understanding	√	**Draw the projection with the first angle projection method** • **Printing** **Drawing the projection with the third angle projection method** • **Tools** **Drawing the three projection with the first and third angle** **Drawing the three projection with the first and third angle and see the difference between them**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
9-11	18	Knowledge and understanding	√	**Draw Isometric after knowing two or three projection** **Sectional theory, cutting projection drawing** **Sectional theory, cutting projection drawing** **Drawing section from defined sections**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

		to employability and personal development)								
12-15	24	Knowledge and understanding	√	**Draw offset sections Introduction about descriptive geometry Projection of point Representation of straight line** **Projection of line and surface on auxiliary plane** **Section of bodies and determination of true shape of section**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

15. Course evaluation: Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.				
quizzes	homework	class activities	mid-exam	Final/theoretical exam
20 %	10%	10%	10%	50%

n and solid geometry) / N.D.Bhatt ef macula nanual / K.S.Kurland www.autodesk.com	Required textbooks
	Recommended supporting books and references (scientific journals, reports....)
	Electronic references, Internet sites

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

University: Al-Furat Al-Awsat Technical University
College: Engineering Technical College/ NAJAF
Department: Building & Construction Eng.Technologies
Name lecturer: mohammed hussin
Scientific title:
Academic qualification: master
Work location: Building & Construction Eng.Technologies

Course Description Form 2023/2024

22-	Course Name
Mathematics	
23-	Course Code ATU22013
24-	Semester / Year
2024/2023	
25-	Description Preparation Date:
2024/6/1	
26-	Available Attendance Forms:
Lectures in the presence of students and online if necessary	
27-	Number of study hours (total)/number of units (total)
6 units/15week	
28-	Name of the course administrator (if there is more than one teaching staff, all of their names will be mentioned
mohammed hussin	

14. Expected learning outcomes of the program		
Knowledge and understanding		
A1	Ability to apply knowledge in mathematics, science, and engineering.	√
A2	Understand the professional and ethical responsibilities of the field of specialization.	√

A3	Ability to evaluate course outcomes with faculty, industry and professional practitioners, as well as employers and graduate students to improve them	√
A4	Teaching leadership skills and the value of quality commitment, ethical behavior and respect for others	√
Subject-specific skills		
B1	Ability to work and integrate into multidisciplinary teams	√
B2	Ability to design and conduct experiments as well as analyze and interpret data.	√
B3	The ability to use modern techniques, engineering skills and tools to practice engineering.	√
B4	Ability to identify and formulate engineering problems in the field of specialization	√
thinking skills		
C1	The ability to communicate effectively with those concerned with the field of specialization	√
C2	Recognizing the need and ability to engage in lifelong learning.	√
C3	Knowledge of contemporary issues in the field of specialization	√
C4	The broad learning necessary to understand the impact of engineering solutions on global economic, environmental and social problems	√
Generic and transferable skills (other skills related to employability and personal development)		
D1	Ability to manage and work on examinations in the fields of civil engineering and all sectors	√
D4	The ability to adapt to similar specializations (Water resources engineering, environmental engineering, architecture, renewable energies, ……)	√

15. Teaching and Learning Strategies

Strategies	Encourage students' participation in solving exercises, while improving and expanding their critical thinking skills. This will be accomplished through interactive classroom and tutorial programs and by looking at types of simple experiments that include some sampling activities of interest to students.

10- Outcomes of the bachelor's program in technical engineering according to the guidelines of the National Council for Programmatic Accreditation for Technical Engineering Education, the Academic Accreditation for Engineering and Technology (ABET), and the International Engineering Alliance (IEA).	
a - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
b - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
c- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	
d- Designs systems, components, or processes for large-scale engineering problems that fit the objectives of the educational program.	

e- Works effectively as a member or leader in a specialized engineering team.	√
f- Identifies, analyzes and solves large-scale engineering problems.	√
g - Identify and utilize appropriate technical literature as well as apply written documents, oral communications, and graphics in both technical and non-technical environments.	√
h- Participates in self-directed continuing professional development.	√
i - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
j - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
k- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	

17. Objectives of the educational program: Due to the rapid scientific and technological progress in the field of Mathematics the Building Technology Engineering Department is working to achieve clear strategic objectives that will help it achieve a prominent position within the academic communities, and they are becoming clear.

A- Maintaining and improving the quality of the curriculum	A1	Introducing scientifically and internationally updated study materials in the study of the specialty of Mathematics and keeping pace with rapid scientific development through direct contact with decision-makers for construction engineering in all parts of the world and direct contact with colleges and institutes specialized in construction engineering .	√
	A2	Continuous evaluation and development of curricula.	√
	A3	Linking student projects and research to community needs.	√
	A4	Expanding students' concepts with field visits , seminars , and training in projects and companies in the building and construction sector.	√
B - Modernizing and opening laboratories by providing them with the latest technical equipment and equipment in the field of specialization and managing them with skilled technicians.	B1	Students use the latest modern laboratory and programming technologies	√
C- Providing the best university environment for faculty and students	C1	Providing air-conditioned classrooms equipped with the latest display devices, providing offices for teachers, green spaces, a club, and a library.	√
D- Maintaining the technical development of faculty members	D1	Encouraging participation and effective scientific visits in conferences and technical meetings, especially with the administrations of Iraqi companies, state and international departments, and international training companies.	√
	D2	Continuous review and evaluation of student and faculty activities	√
	D3	Continuous review and evaluation of student and faculty activities Encouraging students' initiatives and achievements in various academic, artistic and religious fields with the teaching staff	√
E- Knowledge production	E1	Conducting distinguished theoretical and applied research for students with the faculty	√
	E2	Encouraging scientific publishing and stimulating the collective work of research groups from different disciplines	√

	E3	Striving to increase sources of funding for practical and theoretical research for students and faculty through publishing in local and international engineering journals	√
F- Initiatives	F1	Initiatives to reduce administrative routine and facilitate work procedures through educational guidance and developing the relationship between students and teachers.	√
G- Activating and strengthening ties with public government agencies and the private sector	G1	Organizing conferences, seminars and educational courses	√
	G2	Encouraging consulting work and providing services at the professional level in all engineering specializations (technology incubator)	√

18. Course structure											
Week	Hours	Required learning outcomes		Name of the unit or topic	Learning method		Direct assessment method		Indirect assessment method	
1-4	16	Knowledge and understanding	√	**1-Limits** **2-Slope of the straight line , Slope of the curve** **3-Derivatives of algebraic functions , Chain rule , Second and higher order derivative , Application in mechanics** **4-Trigonometric functions** **5-Derivatives of trigonometric functions** **6-Inverse of trigonometric function , The exact value of trigonometric functions**	The direct method is .through lectures	√	Written tests		Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant		Interviews or questionnaires to survey student .opinions	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
5-8	16	Knowledge and understanding	√	**1-Derivatives of inverse of trigonometric functions** **2--Logarithmic and exponential functions , Logarithmic method in derivatives** **3-Derivative of logarithmic and exponential functions , Derivative of a^u , $\log_a u$** **4-Hyperbolic functions , Relation between the hyperbolic functions**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research	√	Completion files and performance assistant	√	Interviews or questionnaires to	

				and exponential functions 5-Derivative of hyperbolic functions 6-Applications of derivatives , Rate of change	carried out in the field of .specialization				survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
9-11	12	Knowledge and understanding	√	**1-Integration of algebraic functions 2-Applications of indefinite integration and finite integration 3-Integration of trigonometric functions and inverse Trigonometric functions 4-Integration of $\ln x, u^{-1}, a^u, e^u$ 5-Methods of integration**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

12-15	16	Knowledge and understanding	√	**1-Area by calculus (Rectangular method 1-1-Trapezoidal rule, Simpson rule)** **2-Area under curve , Area between two curves** **3-Volume by revolution (Disk strip ,Washer strip, Shell strip)** **4-Length of the plane curve , Area of surface of revolution** **5-Matrices (Inverse Matrix)** **6-Matrices (Grammar Method)**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

19. Course evaluation: Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.				
quizzes	homework	class activities	mid-exam	Final/theoretical exam
20 %	10%	10%	10%	50%

20. Learning and teaching resources	
1. **2. 1-Calculus "Seven Edition" By H. Anton , I.Bivens , S. Davis** **3. 2-Advanced Engineering Mathematics , By C.R. Wylie ,** **4. 3-Calculus , By Thomas**	Required textbooks
	Main references (sources)
Google Scholar	Recommended supporting books and references (scientific journals, reports....)
You Tube, Electronic websites	Electronic references, Internet sites

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

University: Al-Furat Al-Awsat Technical University
College: Engineering Technical College/ NAJAF
Department: Building & Construction Eng.Technologies
Name lecturer: Hana'a Mahmood Amer
Scientific title: Lecturer
Academic qualification: Master's
Work location: Building & Construction Eng.Technologies

Course Description Form 2023/2024

29-	Course Name
	ENGINEERING PHYSICS
30-	Course Code
	ATU16014
31-	Semester / Year
	2024/2023
32-	Description Preparation Date:
	2024/6/1
33-	Available Attendance Forms:
	Lectures in the presence of students and online if necessary
34-	Number of study hours (total)/number of units (total)
	15 week / 4 units
35-	Name of the course administrator (if there is more than one teaching staff, all of their names will be mentioned
	Lecture . Hana'a Mahmood Amer

16. Expected learning outcomes of the program		
Knowledge and understanding		
A1	Ability to apply knowledge in mathematics, science, and engineering.	√
A2	Understand the professional and ethical responsibilities of the field of specialization.	√
A3	Ability to evaluate course outcomes with faculty, industry and professional practitioners, as well as employers and graduate students to improve them	√

A4	Teaching leadership skills and the value of quality commitment, ethical behavior and respect for others	√
Subject-specific skills		
B1	Ability to work and integrate into multidisciplinary teams	√
B2	Ability to design and conduct experiments as well as analyze and interpret data.	√
B3	The ability to use modern techniques, engineering skills and tools to practice engineering.	√
B4	Ability to identify and formulate engineering problems in the field of specialization	√
thinking skills		
C1	The ability to communicate effectively with those concerned with the field of specialization	√
C2	Recognizing the need and ability to engage in lifelong learning.	√
C3	Knowledge of contemporary issues in the field of specialization	√
C4	The broad learning necessary to understand the impact of engineering solutions on global economic, environmental and social problems	√
Generic and transferable skills (other skills related to employability and personal development)		
D1	Ability to manage and work on examinations in the fields of civil engineering and all sectors	√
D4	The ability to adapt to similar specializations (Water resources engineering, environmental engineering, architecture, renewable energies, ……)	√

17. Teaching and Learning Strategies

Strategies	Encourage students' participation in solving exercises, while improving and expanding their critical thinking skills. This will be accomplished through interactive classroom and tutorial programs and by looking at types of simple experiments that include some sampling activities of interest to students.

10- Outcomes of the bachelor's program in technical engineering according to the guidelines of the National Council for Programmatic Accreditation for Technical Engineering Education, the Academic Accreditation for Engineering and Technology (ABET), and the International Engineering Alliance (IEA).	
a - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
b - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
c- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	
d- Designs systems, components, or processes for large-scale engineering problems that fit the objectives of the educational program.	
e- Works effectively as a member or leader in a specialized engineering team.	√

f- Identifies, analyzes and solves large-scale engineering problems.	√
g - Identify and utilize appropriate technical literature as well as apply written documents, oral communications, and graphics in both technical and non-technical environments.	√
h- Participates in self-directed continuing professional development.	√
i - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
j - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
k- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	

21. Objectives of the educational program: Due to the rapid scientific and technological progress in the field of ENGINEERING PHYSICS, the Building Technology Engineering Department is working to achieve clear strategic objectives that will help it achieve a prominent position within the academic communities, and they are becoming clear.

A- Maintaining and improving the quality of the curriculum	A1	Introducing scientifically and internationally updated study materials in the study of the specialty of ENGINEERING PHYSICS and keeping pace with rapid scientific development through direct contact with decision-makers for construction engineering in all parts of the world and direct contact with colleges and institutes specialized in construction engineering .	√
	A2	Continuous evaluation and development of curricula.	√
	A3	Linking student projects and research to community needs.	√
	A4	Expanding students' concepts with field visits , seminars , and training in projects and companies in the building and construction sector.	√
B - Modernizing and opening laboratories by providing them with the latest technical equipment and equipment in the field of specialization and managing them with skilled technicians.	B1	Students use the latest modern laboratory and programming technologies	√
C- Providing the best university environment for faculty and students	C1	Providing air-conditioned classrooms equipped with the latest display devices, providing offices for teachers, green spaces, a club, and a library.	√
D- Maintaining the technical development of faculty members	D1	Encouraging participation and effective scientific visits in conferences and technical meetings, especially with the administrations of Iraqi companies, state and international departments, and international training companies.	√
	D2	Continuous review and evaluation of student and faculty activities	√
	D3	Continuous review and evaluation of student and faculty activities Encouraging students' initiatives and achievements in various academic, artistic and religious fields with the teaching staff	√
E- Knowledge production	E1	Conducting distinguished theoretical and applied research for students with the faculty	√
	E2	Encouraging scientific publishing and stimulating the collective work of research groups from different disciplines	√
	E3	Striving to increase sources of funding for practical and theoretical research for students and faculty through publishing in local and international engineering journals	√

F- Initiatives	F1	Initiatives to reduce administrative routine and facilitate work procedures through educational guidance and developing the relationship between students and teachers.	√
G- Activating and strengthening ties with public government agencies and the private sector	G1	Organizing conferences, seminars and educational courses	√
	G2	Encouraging consulting work and providing services at the professional level in all engineering specializations (technology incubator)	√

11. Course structure							
Week	Hours	Required learning outcomes		Name of the unit or topic	Learning method		Direct assessment method
1	3	Knowledge and understanding	√	Demonstrates knowledge about the introduction and Scope of Physics 1, Units, Physical Quantities .and Vectors	The direct method is .through lectures	√	Lecture/discuss
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Lecture/discuss
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Lecture/discuss
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Lecture/discuss
2	3	Knowledge and understanding	√	Demonstrates knowledge of Standards and Units, Utilization of Units and .conversions	The direct method is .through lectures	√	Lecture/discuss
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Lecture/discuss
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Lecture/discuss
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Lecture/discuss
3	3	Knowledge and understanding	√	Demonstrates knowledge and implementation of .the Linear Motion	The direct method is .through lectures	√	Lecture/discuss
		Subject-specific skills	√		The subjective method is through preparing	√	Lecture/discuss

					research papers and discussing them collectively		
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Lecture/discuss
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Lecture/discuss
4	3	Knowledge and understanding	√	Demonstrates knowledge and compute 2-D and 3-D .Motion	The direct method is .through lectures	√	Lecture/discuss
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Lecture/discuss
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Lecture/discuss
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Lecture/discuss
5	3	Knowledge and understanding	√	Demonstrates knowledge .about Newton's Law	The direct method is .through lectures	√	Lecture/discuss
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Lecture/discuss
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Lecture/discuss
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Lecture/discuss

6	3	Knowledge and understanding	√	Implements the Applications of Newton's .Law	The direct method is .through lectures	√	Lecture/discuss
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Lecture/discuss
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Lecture/discuss
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Lecture/discuss
7	3	Knowledge and understanding	√	Review and solution of .the homework	The direct method is .through lectures	√	Lecture/discuss
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Lecture/discuss
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Lecture/discuss
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Lecture/discuss
8	3	Knowledge and understanding	√	.Mid- Term Exam	The direct method is .through lectures	√	Lecture/discuss
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Lecture/discuss

		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Lecture/discuss
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Lecture/discuss
9	3	Knowledge and understanding	√	.Midterm week	The direct method is .through lectures	√	Lecture/discuss
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Lecture/discuss
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Lecture/discuss
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Lecture/discuss
`10	3	Knowledge and understanding	√	Demonstrates knowledge and calculation of work .and Kinetic Energy	The direct method is .through lectures	√	Lecture/discuss
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Lecture/discuss
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Lecture/discuss
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Lecture/discuss
11	3	Knowledge and understanding	√		The direct method is .through lectures	√	Lecture/discuss

				Demonstrates knowledge and calculation of the Potential Energy and .Conservation of Energy			
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
12	3	Knowledge and understanding	√	Demonstrates knowledge and calculation of the Momentum, Impulse and .Collisions	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
13	3	Knowledge and understanding	√	Demonstrates knowledge and calculation of the Rotational motion of Rigid .Bodies	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant

		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
14-15	6	Knowledge and understanding	√	Demonstrates knowledge and calculation of the .Rotational Kinematics	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation

12. Course evaluation: Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.				
quizzes	homework	class activities	mid-exam	Final/theoretical exam
20 %	10%	10%	10%	50%

	Required textbooks
haums_Outline_of_College	Main references (sources)
	Recommended supporting books and references (scientific journals, reports....)
	Electronic references, Internet sites

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

University: Al-Furat Al-Awsat Technical University
College: Engineering Technical College/ NAJAF
Department: Building & Construction Eng.Technologies
Name lecturer: alaa mohsin
Scientific title: Lecturer
Academic qualification: master
Work location: Building & Construction Eng.Technologies

Course Description Form 2023/2024

36-	Course Name
	Engineering Mechanics
37-	Course Code
	ATU16011
38-	Semester / Year
	2024/2023
39-	Description Preparation Date:
	2024/6/1
40-	Available Attendance Forms:
	Lectures in the presence of students and online if necessary
41-	Number of study hours (total)/number of units (total)
	15 week / 8 units
42-	Name of the course administrator (if there is more than one teaching staff, all of their names will be mentioned
	Alaa mohsin : alaa.dawood @atu.edu.iq

18. Expected learning outcomes of the program		
Knowledge and understanding		
A1	Ability to apply knowledge in mathematics, science, and engineering.	√

A2	Understand the professional and ethical responsibilities of the field of specialization.	√
A3	Ability to evaluate course outcomes with faculty, industry and professional practitioners, as well as employers and graduate students to improve them	√
A4	Teaching leadership skills and the value of quality commitment, ethical behavior and respect for others	√
Subject-specific skills		
B1	Ability to work and integrate into multidisciplinary teams	√
B2	Ability to design and conduct experiments as well as analyze and interpret data.	√
B3	The ability to use modern techniques, engineering skills and tools to practice engineering.	√
B4	Ability to identify and formulate engineering problems in the field of specialization	√
thinking skills		
C1	The ability to communicate effectively with those concerned with the field of specialization	√
C2	Recognizing the need and ability to engage in lifelong learning.	√
C3	Knowledge of contemporary issues in the field of specialization	√
C4	The broad learning necessary to understand the impact of engineering solutions on global economic, environmental and social problems	√
Generic and transferable skills (other skills related to employability and personal development)		
D1	Ability to manage and work on examinations in the fields of civil engineering and all sectors	√
D4	The ability to adapt to similar specializations (Water resources engineering, environmental engineering, architecture, renewable energies, ……)	√

19. Teaching and Learning Strategies

Strategies	Encourage students' participation in solving exercises, while improving and expanding their critical thinking skills. This will be accomplished through interactive classroom and tutorial programs and by looking at types of simple experiments that include some sampling activities of interest to students.

10- Outcomes of the bachelor's program in technical engineering according to the guidelines of the National Council for Programmatic Accreditation for Technical Engineering Education, the Academic Accreditation for Engineering and Technology (ABET), and the International Engineering Alliance (IEA).	
a - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
b - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
c- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	
d- Designs systems, components, or processes for large-scale engineering problems that fit the objectives of the educational program.	
e- Works effectively as a member or leader in a specialized engineering team.	√
f- Identifies, analyzes and solves large-scale engineering problems.	√
g - Identify and utilize appropriate technical literature as well as apply written documents, oral communications, and graphics in both technical and non-technical environments.	√
h- Participates in self-directed continuing professional development.	√
i - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
j - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
k- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	

22. Objectives of the educational program: Due to the rapid scientific and technological progress in the field of Engineering Mechanics , the Building Technology Engineering Department is working to achieve clear strategic objectives that will help it achieve a prominent position within the academic communities, and they are becoming clear.			
A- Maintaining and improving the quality of the curriculum	A1	Introducing scientifically and internationally updated study materials in the study of the specialty of Engineering Mechanics and keeping pace with rapid scientific development through direct contact with decision-makers for construction engineering in all parts of the world and direct contact with colleges and institutes specialized in construction engineering .	√
	A2	Continuous evaluation and development of curricula.	√
	A3	Linking student projects and research to community needs.	√
	A4	Expanding students' concepts with field visits , seminars , and training in projects and companies in the building and construction sector.	√
B - Modernizing and opening laboratories by providing them with the latest technical equipment and equipment in the field of specialization and	B1	Students use the latest modern laboratory and programming technologies	√

managing them with skilled technicians.			
C- Providing the best university environment for faculty and students	C1	Providing air-conditioned classrooms equipped with the latest display devices, providing offices for teachers, green spaces, a club, and a library.	√
D- Maintaining the technical development of faculty members	D1	Encouraging participation and effective scientific visits in conferences and technical meetings, especially with the administrations of Iraqi companies, state and international departments, and international training companies.	√
	D2	Continuous review and evaluation of student and faculty activities	√
	D3	Continuous review and evaluation of student and faculty activities Encouraging students' initiatives and achievements in various academic, artistic and religious fields with the teaching staff	√
E- Knowledge production	E1	Conducting distinguished theoretical and applied research for students with the faculty	√
	E2	Encouraging scientific publishing and stimulating the collective work of research groups from different disciplines	√
	E3	Striving to increase sources of funding for practical and theoretical research for students and faculty through publishing in local and international engineering journals	√
F- Initiatives	F1	Initiatives to reduce administrative routine and facilitate work procedures through educational guidance and developing the relationship between students and teachers.	√
G- Activating and strengthening ties with public government agencies and the private sector	G1	Organizing conferences, seminars and educational courses	√
	G2	Encouraging consulting work and providing services at the professional level in all engineering specializations (technology incubator)	√

23. Course structure

Week	Hours	Required learning outcomes		Name of the unit or topic	Learning method		Direct assessment method		Indirect assessment method	
1-4	16	Knowledge and understanding	√	**1-Introduction to mechanics , Force systems , Scalar & vector quantities , Parallelogram law , Triangle law , Forces & components .** **2-Moment of a force , Varignon`s theorem , Applications** **3-Couples , Resolution of a force into a force & a couple .** **4-Resultant of force systems , Resultant of concurrent force system , Resultant of parallel force system , Resultant of non-concurrent force system .**	The direct method is .through lectures	√	Written tests		Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant		Interviews or questionnaires to survey student .opinions	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
5-8	16	Knowledge and understanding	√	**1-Equilibrium of force system , Free body diagram , Equilibrium of concurrent force system , Equilibrium of parallel force system , Equilibrium of non-concurrent force system .** **2-Types of beams, Supports, and loads, Equilibrium of beams.**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research	√	Completion files and performance assistant	√	Interviews or questionnaires to	

				3-Trusses, Analysis of trusses, method of Joint , method of section . 4-Analysis of frames (method of members) .	carried out in the field of .specialization				survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
9-11	12	Knowledge and understanding	√	1-Friction , Theory of friction , Angle of friction , Types of friction , Wedges ,Applications. 2-Centroids of areas & lines , Centroids by integration , Centroids of composite areas , Applications. 3-Moment of inertia , Polar moment of inertia , Radius of gyration , Transfer formula for moment of inertia , Moment of inertia for composite areas , Product of inertia , Moment of inertia with respect to inclined axes , Mohr` circle for moment of inertia .	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
12-15	16	Knowledge and understanding	√	1-Principles of dynamics , Kinematics & kinetics , Motion of a particle , Fundamental Equations of kinetics for a particle , Effective force on a particle. 2-Rectilinear translation , Rectilinear motion with constant	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	

		thinking skills	√	**acceleration , Free falling bodies . 3-Kinetics of rectilinear translation (Analysis as a particle) , Dynamic Equilibrium in translation (Analysis as a rigid body) .**	Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

24. Course evaluation: Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

quizzes	homework	class activities	mid-exam	Final/theoretical exam
20 %	10%	10%	10%	50%

25. Learning and teaching resources

1-Engineering Mechanics / F.L. Singer **2-Engineering Mechanics / Mclean & Nelson** **3-Engineering Mechanics / J.F. Shelley** **4-Engineering Mechanics / A. Higdon & W.B. Stiles** **5-Mechanics for Engineers / Statics / F.P. Beer , E.R. Johnston,Jr**	Required textbooks
Google Scholar	Recommended supporting books and references (scientific journals, reports....)
You Tube, Electronic websites	Electronic references, Internet sites

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

University: Al-Furat Al-Awsat Technical University
College: Engineering Technical College/ NAJAF
Department: Building & Construction Eng.Technologies
Name lecturer: noor hashim
Scientific title: Lecturer
Academic qualification: master
Work location: Building & Construction Eng.Technologies

Course Description Form 2023/2024

1- Course Name
Principles of Computer
2- Course Code
ATU16025
3- Semester / Year
2024/2023
4- Description Preparation Date:
2024/6/1
5- Available Attendance Forms:
Lectures in the presence of students and online if necessary
6- Number of study hours (total)/number of units (total)
15 week / 4 units
7- Name of the course administrator (if there is more than one teaching staff, all of their names will be mentioned
Noor hashim

8. Expected learning outcomes of the program		
Knowledge and understanding		
A1	Ability to apply knowledge in mathematics, science, and engineering.	√
A2	Understand the professional and ethical responsibilities of the field of specialization.	√
A3	Ability to evaluate course outcomes with faculty, industry and professional practitioners, as well as employers and graduate students to improve them	√

A4	Teaching leadership skills and the value of quality commitment, ethical behavior and respect for others	√
Subject–specific skills		
B1	Ability to work and integrate into multidisciplinary teams	√
B2	Ability to design and conduct experiments as well as analyze and interpret data.	√
B3	The ability to use modern techniques, engineering skills and tools to practice engineering.	√
B4	Ability to identify and formulate engineering problems in the field of specialization	√
thinking skills		
C1	The ability to communicate effectively with those concerned with the field of specialization	√
C2	Recognizing the need and ability to engage in lifelong learning.	√
C3	Knowledge of contemporary issues in the field of specialization	√
C4	The broad learning necessary to understand the impact of engineering solutions on global economic, environmental and social problems	√
Generic and transferable skills (other skills related to employability and personal development)		
D1	Ability to manage and work on examinations in the fields of civil engineering and all sectors	√
D4	The ability to adapt to similar specializations (Water resources engineering, environmental engineering, architecture, renewable energies, ……)	√

9. Teaching and Learning Strategies

Strategies	Encourage students' participation in solving exercises, while improving and expanding their critical thinking skills. This will be accomplished through interactive classroom and tutorial programs and by looking at types of simple experiments that include some sampling activities of interest to students.

10- Outcomes of the bachelor's program in technical engineering according to the guidelines of the National Council for Programmatic Accreditation for Technical Engineering Education, the Academic Accreditation for Engineering and Technology (ABET), and the International Engineering Alliance (IEA).	
a - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
b - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
c- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	
d- Designs systems, components, or processes for large-scale engineering problems that fit the objectives of the educational program.	
e- Works effectively as a member or leader in a specialized engineering team.	√
f- Identifies, analyzes and solves large-scale engineering problems.	√

g - Identify and utilize appropriate technical literature as well as apply written documents, oral communications, and graphics in both technical and non-technical environments.	√
h- Participates in self-directed continuing professional development.	√
i - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
j - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
k- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	

11. Objectives of the educational program: Due to the rapid scientific and technological progress in the field of Principles of Computer, the Building Technology Engineering Department is working to achieve clear strategic objectives that will help it achieve a prominent position within the academic communities, and they are becoming clear.

A- Maintaining and improving the quality of the curriculum	A1	Introducing scientifically and internationally updated study materials in the study of the specialty Principles of Computer and keeping pace with rapid scientific development through direct contact with decision-makers for construction engineering in all parts of the world and direct contact with colleges and institutes specialized in construction engineering .	√
	A2	Continuous evaluation and development of curricula.	√
	A3	Linking student projects and research to community needs.	√
	A4	Expanding students' concepts with field visits , seminars , and training in projects and companies in the building and construction sector.	√
B - Modernizing and opening laboratories by providing them with the latest technical equipment and equipment in the field of specialization and managing them with skilled technicians.	B1	Students use the latest modern laboratory and programming technologies	√
C- Providing the best university environment for faculty and students	C1	Providing air-conditioned classrooms equipped with the latest display devices, providing offices for teachers, green spaces, a club, and a library.	√
D- Maintaining the technical development of faculty members	D1	Encouraging participation and effective scientific visits in conferences and technical meetings, especially with the administrations of Iraqi companies, state and international departments, and international training companies.	√
	D2	Continuous review and evaluation of student and faculty activities	√
	D3	Continuous review and evaluation of student and faculty activities Encouraging students' initiatives and achievements in various academic, artistic and religious fields with the teaching staff	√
E- Knowledge production	E1	Conducting distinguished theoretical and applied research for students with the faculty	√
	E2	Encouraging scientific publishing and stimulating the collective work of research groups from different disciplines	√
	E3	Striving to increase sources of funding for practical and theoretical research for students and faculty through publishing in local and international engineering journals	√

F- Initiatives	F1	Initiatives to reduce administrative routine and facilitate work procedures through educational guidance and developing the relationship between students and teachers.	√
G- Activating and strengthening ties with public government agencies and the private sector	G1	Organizing conferences, seminars and educational courses	√
	G2	Encouraging consulting work and providing services at the professional level in all engineering specializations (technology incubator)	√

12. Course structure

Week	Hours	Required learning outcomes		Name of the unit or topic	Learning method		Direct asses metho
1-6	18	Knowledge and understanding	√	**Introduction to computer , computer component (hardware , software) Operating system (windows) , installing windows (formatting) Start menu , desktop , taskbar , mouse applications My computer , My documents , drivers , folders , files , cut , copy , paste , shortcut , right click menu Setting menu , control panel Microsoft word 2007 (program view , office button) Menu (home icons) Menu (insert icons**	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
7-8	6	Knowledge and understanding	√	**Menus (page layout , review , view , design) Icons (symbols , equation) Practical exercises Microsoft excel 2007 (program view , office button)**	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
9-13	15	Knowledge and understanding	√	**Home icons Insert icons Page layout icons Formula icons , view icons Data icons , chart wizard Practical exercises Microsoft power point 2007 (program view , office button Insert icons , design icons Animations icons , slid show icons Practical exercises**	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation

				Viruses , types of viruses , protection from viruses			
14-15	6	Knowledge and understanding	√	**Internet , internet explorer , starting , menus of internet explorer** **E-mail : yahoo , hotmail** **Search engines , google , yahoo , search information** **Surfer** **Practical exercise**	The direct method is through lectures.	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of specialization.	√	Completion file and performan assistant
		Generic and transferable skills (other skills related	√		An interactive method by dividing students into	√	Projects and tion

11. Course evaluation: Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

quizzes	homework	class activities	mid-exam	Final/theoretical exam
20 %	10%	10%	10%	50%

13. Learning and teaching resources

1. **2. Computer Skills (2) , د محمد بلال الزغبي و أحمد الشرايعة و أمجد هديب** **3. Internet Explorer , By S.Haag , J. T. Perry & A. Phillips** **4. Exel a comprehensive approach By K. Stewart** **5. Computers & Internet (IC3), By د محمد بلال الزغبي** **6. Word By S. Haag , J.T. Perry & A. Phillips**	Required te
Google Scholar	Recommen (s
You Tube, Electronic websites	Electronic re

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

University: Al-Furat Al-Awsat Technical University
College: Engineering Technical College/ NAJAF
Department: Building & Construction Eng.Technologies
Name lecturer: Muqdad Raoof
Scientific title: Lecturer
Academic qualification: Doctorate
Work location: Building & Construction Eng.Technologies

Course Description Form 2023/2024

8- Course Name
Plane Surveying
9- Course Code
ATU16022
10- Semester / Year
2024/2023
11- Description Preparation Date:
2024/6/1
12- Available Attendance Forms:
Lectures in the presence of students and online if necessary
13- Number of study hours (total)/number of units (total)
15 week / 7 units
14- Name of the course administrator (if there is more than one teaching staff, all of their names will be mentioned
Name: Dr. Muqdad Raoof Kareem Al-Juboori Email: muqdad.aljuboori@my.jcu.edu.au

10. Expected learning outcomes of the program		
Knowledge and understanding		
A1	Ability to apply knowledge in mathematics, science, and engineering.	√
A2	Understand the professional and ethical responsibilities of the field of specialization.	√

A3	Ability to evaluate course outcomes with faculty, industry and professional practitioners, as well as employers and graduate students to improve them	√
A4	Teaching leadership skills and the value of quality commitment, ethical behavior and respect for others	√
Subject-specific skills		
B1	Ability to work and integrate into multidisciplinary teams	√
B2	Ability to design and conduct experiments as well as analyze and interpret data.	√
B3	The ability to use modern techniques, engineering skills and tools to practice engineering.	√
B4	Ability to identify and formulate engineering problems in the field of specialization	√
thinking skills		
C1	The ability to communicate effectively with those concerned with the field of specialization	√
C2	Recognizing the need and ability to engage in lifelong learning.	√
C3	Knowledge of contemporary issues in the field of specialization	√
C4	The broad learning necessary to understand the impact of engineering solutions on global economic, environmental and social problems	√
Generic and transferable skills (other skills related to employability and personal development)		
D1	Ability to manage and work on examinations in the fields of civil engineering and all sectors	√
D4	The ability to adapt to similar specializations (Water resources engineering, environmental engineering, architecture, renewable energies, ……)	√

11. Teaching and Learning Strategies

Strategies	Encourage students' participation in solving exercises, while improving and expanding their critical thinking skills. This will be accomplished through interactive classroom and tutorial programs and by looking at types of simple experiments that include some sampling activities of interest to students.

0- Outcomes of the bachelor's program in technical engineering according to the guidelines of the National Council for Programmatic Accreditation for Technical Engineering Education, the Academic Accreditation for Engineering and Technology (ABET), and the International Engineering Alliance (IEA).	
a - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
b - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
c- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	
d- Designs systems, components, or processes for large-scale engineering problems that fit the objectives of the educational program.	
e- Works effectively as a member or leader in a specialized engineering team.	√
f- Identifies, analyzes and solves large-scale engineering problems.	√

g - Identify and utilize appropriate technical literature as well as apply written documents, oral communications, and graphics in both technical and non-technical environments.	√
h- Participates in self-directed continuing professional development.	√
i - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
j - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
k- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	

14. Objectives of the educational program: Due to the rapid scientific and technological progress in the field of Plane Surveying , the Building Technology Engineering Department is working to achieve clear strategic objectives that will help it achieve a prominent position within the academic communities, and they are becoming clear.

A- Maintaining and improving the quality of the curriculum	A1	Introducing scientifically and internationally updated study materials in the study of the specialty of Plane Surveying and keeping pace with rapid scientific development through direct contact with decision-makers for construction engineering in all parts of the world and direct contact with colleges and institutes specialized in construction engineering .	√
	A2	Continuous evaluation and development of curricula.	√
	A3	Linking student projects and research to community needs.	√
	A4	Expanding students' concepts with field visits , seminars , and training in projects and companies in the building and construction sector.	√
B - Modernizing and opening laboratories by providing them with the latest technical equipment and equipment in the field of specialization and managing them with skilled technicians.	B1	Students use the latest modern laboratory and programming technologies	√
C- Providing the best university environment for faculty and students	C1	Providing air-conditioned classrooms equipped with the latest display devices, providing offices for teachers, green spaces, a club, and a library.	√
D- Maintaining the technical development of faculty members	D1	Encouraging participation and effective scientific visits in conferences and technical meetings, especially with the administrations of Iraqi companies, state and international departments, and international training companies.	√
	D2	Continuous review and evaluation of student and faculty activities	√
	D3	Continuous review and evaluation of student and faculty activities Encouraging students' initiatives and achievements in various academic, artistic and religious fields with the teaching staff	√
E- Knowledge production	E1	Conducting distinguished theoretical and applied research for students with the faculty	√
	E2	Encouraging scientific publishing and stimulating the collective work of research groups from different disciplines	√
	E3	Striving to increase sources of funding for practical and theoretical research for students and faculty through publishing in local and international engineering journals	√

F- Initiatives	F1	Initiatives to reduce administrative routine and facilitate work procedures through educational guidance and developing the relationship between students and teachers.	√
G- Activating and strengthening ties with public government agencies and the private sector	G1	Organizing conferences, seminars and educational courses	√
	G2	Encouraging consulting work and providing services at the professional level in all engineering specializations (technology incubator)	√

15. Course structure

Week	Hours	Required learning outcomes		Name of the unit or topic	Learning method		Direct asses metho
1-6	30	Knowledge and understanding	√	**General basics of surveying, fundamentals of surveying, units of measurements, Plotting scale. Linear measurements. Means for measuring distances, Direct method of horizontal distances measurement, Target survey, Details, Electronic distance measuring instruments. Errors in surveying. Types of errors, Accuracy and precision, Principles of errors scattering theory. Obstacles to measuring.**	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
7-8	10	Knowledge and understanding	√	**Traversing. Types of traverse, Coordinates measurement, Traverse adjustment. Leveling. Types of leveling , Leveling instrumentation , Leveling by taping, Trigonometric leveling , Sources of errors in leveling (vertical, horizontal).**	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
9-13	25	Knowledge and understanding	√	**Bearing and angles. Methods of angles measurement and bearing calculation. Vertical sections , Longitudinal sections ,Calculation of cut and fill.**	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation

14-15	10	Knowledge and understanding	√	**Contour lines: Method of drawing and construction. Areas and volumes: Volume computation from cross-section , Volume from topographic maps and grid net , Volume computation from contour maps.**	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion file and performan assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation

16. Course evaluation: Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.				
quizzes	homework	class activities	mid-exam	Final/theoretical exam
20 %	10%	10%	10%	50%

n M.S.Naga Raj. **m Irvine**	Required textbooks
المساحة المستوية والمائية د علي شكري **المساحة المستوية د فوزي الخالصي –**	
	Recommended supporting books and references (scientific journals, reports....)
	Electronic references, Internet sites

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

University: Al-Furat Al-Awsat Technical University
College: Engineering Technical College/ NAJAF
Department: Building & Construction Eng.Technologies
Name lecturer: hanaa mahmood
Scientific title: Lecturer
Academic qualification: master
Work location: Building & Construction Eng.Technologies

Course Description Form 2023/2024

15-	Course Name
DESCRIPTIVE GEOMETRY	
16-	Course Code
ATU16024	
17-	Semester / Year
2024/2023	
18-	Description Preparation Date:
2024/6/1	
19-	Available Attendance Forms:
Lectures in the presence of students and online if necessary	
20-	Number of study hours (total)/number of units (total)
15 week / 4 units	
21-	Name of the course administrator (if there is more than one teaching staff, all of their names will be mentioned
م. هناء محمود عامر : Inj.han@atu.edu.iq	

12. Expected learning outcomes of the program		
Knowledge and understanding		
A1	Ability to apply knowledge in mathematics, science, and engineering.	√
A2	Understand the professional and ethical responsibilities of the field of specialization.	√

A3	Ability to evaluate course outcomes with faculty, industry and professional practitioners, as well as employers and graduate students to improve them	√
A4	Teaching leadership skills and the value of quality commitment, ethical behavior and respect for others	√
Subject-specific skills		
B1	Ability to work and integrate into multidisciplinary teams	√
B2	Ability to design and conduct experiments as well as analyze and interpret data.	√
B3	The ability to use modern techniques, engineering skills and tools to practice engineering.	√
B4	Ability to identify and formulate engineering problems in the field of specialization	√
thinking skills		
C1	The ability to communicate effectively with those concerned with the field of specialization	√
C2	Recognizing the need and ability to engage in lifelong learning.	√
C3	Knowledge of contemporary issues in the field of specialization	√
C4	The broad learning necessary to understand the impact of engineering solutions on global economic, environmental and social problems	√
Generic and transferable skills (other skills related to employability and personal development)		
D1	Ability to manage and work on examinations in the fields of civil engineering and all sectors	√
D4	The ability to adapt to similar specializations (Water resources engineering, environmental engineering, architecture, renewable energies, ……)	√

13. Teaching and Learning Strategies

Strategies	Encourage students' participation in solving exercises, while improving and expanding their critical thinking skills. This will be accomplished through interactive classroom and tutorial programs and by looking at types of simple experiments that include some sampling activities of interest to students.

10- Outcomes of the bachelor's program in technical engineering according to the guidelines of the National Council for Programmatic Accreditation for Technical Engineering Education, the Academic Accreditation for Engineering and Technology (ABET), and the International Engineering Alliance (IEA).	
a - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
b - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
c- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	
d- Designs systems, components, or processes for large-scale engineering problems that fit the objectives of the educational program.	

e- Works effectively as a member or leader in a specialized engineering team.	√
f- Identifies, analyzes and solves large-scale engineering problems.	√
g - Identify and utilize appropriate technical literature as well as apply written documents, oral communications, and graphics in both technical and non-technical environments.	√
h- Participates in self-directed continuing professional development.	√
i - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
j - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
k- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	

18. Objectives of the educational program: Due to the rapid scientific and technological progress in the field of DESCRIPTIVE GEOMETRY, the Building Technology Engineering Department is working to achieve clear strategic objectives that will help it achieve a prominent position within the academic communities, and they are becoming clear.			
A- Maintaining and improving the quality of the curriculum	A1	Introducing scientifically and internationally updated study materials in the study of the specialty of DESCRIPTIVE GEOMETRY and keeping pace with rapid scientific development through direct contact with decision-makers for construction engineering in all parts of the world and direct contact with colleges and institutes specialized in construction engineering .	√
	A2	Continuous evaluation and development of curricula.	√
	A3	Linking student projects and research to community needs.	√
	A4	Expanding students' concepts with field visits , seminars , and training in projects and companies in the building and construction sector.	√
B - Modernizing and opening laboratories by providing them with the latest technical equipment and equipment in the field of specialization and managing them with skilled technicians.	B1	Students use the latest modern laboratory and programming technologies	√
C- Providing the best university environment for faculty and students	C1	Providing air-conditioned classrooms equipped with the latest display devices, providing offices for teachers, green spaces, a club, and a library.	√
D- Maintaining the technical development of faculty members	D1	Encouraging participation and effective scientific visits in conferences and technical meetings, especially with the administrations of Iraqi companies, state and international departments, and international training companies.	√
	D2	Continuous review and evaluation of student and faculty activities	√
	D3	Continuous review and evaluation of student and faculty activities Encouraging students' initiatives and achievements in various academic, artistic and religious fields with the teaching staff	√
E- Knowledge production	E1	Conducting distinguished theoretical and applied research for students with the faculty	√

	E2	Encouraging scientific publishing and stimulating the collective work of research groups from different disciplines	√
	E3	Striving to increase sources of funding for practical and theoretical research for students and faculty through publishing in local and international engineering journals	√
F- Initiatives	F1	Initiatives to reduce administrative routine and facilitate work procedures through educational guidance and developing the relationship between students and teachers.	√
G- Activating and strengthening ties with public government agencies and the private sector	G1	Organizing conferences, seminars and educational courses	√
	G2	Encouraging consulting work and providing services at the professional level in all engineering specializations (technology incubator)	√

19. Course structure											
Week	Hours	Required learning outcomes		Name of the unit or topic	Learning method		Direct assessment method		Indirect assessment method		
1	2	Knowledge and understanding	√	Orthogonal .projection	The direct method is .through lectures	√	Written tests		Interviews or questionnaires to survey graduates' opinions		
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions		
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant		Interviews or questionnaires to survey student .opinions		
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters		

2	2	Knowledge and understanding	√	Correctly implement the representation of a .point, line, plane, solid	The direct method is .through lectures	√	Written tests		Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant		Interviews or questionnaires to survey student .opinions	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
3	2	Knowledge and understanding	√	Demonstrates knowledge about particular lays of a line, of a plane.	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
4	2	Knowledge and understanding	√	Able to identify parallelism between two lines, parallelism between two planes,	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	

		Subject-specific skills	√	parallelism between a line and a plane.	The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
6-5	4	Knowledge and understanding	√	Able to identify perpendicularity between two a line and a plane, perpendicularity between two coplanar lines, and perpendicularity .between two planes	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

7-8	4	Knowledge and understanding	√	Demonstrates knowledge about the intersection between two planes (not parallel) intersection between a plane and a . .line	The direct method is .through lectures	√	Written tests		Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant		Interviews or questionnaires to survey student .opinions	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

9	2	Knowledge and understanding	√	Demonstrates knowledge about section line-plane, .plane- plane	The direct method is .through lectures	√	Written tests		Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant		Interviews or questionnaires to survey student .opinions	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
11-10	4	Knowledge and understanding	√	Demonstrates knowledge about the intersection among solids, solids/plane, solids/line..	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
12	2	Knowledge and understanding	√	Demonstrates knowledge about orthogonal axonometric.	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	

		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
13	2	Knowledge and understanding	√	Demonstrates knowledge about .oblique axonometric	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

14	2	Knowledge and understanding	√	Demonstrates knowledge about representation of point, line, plane, solids.	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters

20. Course evaluation: Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.				
quizzes	homework	class activities	mid-exam	Final/theoretical exam
20 %	10%	10%	10%	50%

	Required textbooks
	Main references (sources)
	Recommended supporting books and references (scientific journals, reports....)
	Electronic references, Internet sites

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

University: Al-Furat Al-Awsat Technical University
College: Engineering Technical College/ NAJAF
Department: Building & Construction Eng.Technologies
Name lecturer: diaa kareem
Scientific title: Lecturer
Academic qualification: master
Work location: Building & Construction Eng.Technologies

Course Description Form 2023/2024

22-	Course Name
Engineering Geology	
23-	Course Code
ATU 16023	
24-	Semester / Year
2024/2023	
25-	Description Preparation Date:
2024/6/1	
26-	Available Attendance Forms:
Lectures in the presence of students and online if necessary	
27-	Number of study hours (total)/number of units (total)
200 hours-15 week / 4 units	
28-	Name of the course administrator (if there is more than one teaching staff, all of their names will be mentioned
Diaa kareem	

14. Expected learning outcomes of the program		
Knowledge and understanding		
A1	Ability to apply knowledge in mathematics, science, and engineering.	√
A2	Understand the professional and ethical responsibilities of the field of specialization.	√
A3	Ability to evaluate course outcomes with faculty, industry and professional practitioners, as well as employers and graduate students to improve them	√

A4	Teaching leadership skills and the value of quality commitment, ethical behavior and respect for others	√
Subject-specific skills		
B1	Ability to work and integrate into multidisciplinary teams	√
B2	Ability to design and conduct experiments as well as analyze and interpret data.	√
B3	The ability to use modern techniques, engineering skills and tools to practice engineering.	√
B4	Ability to identify and formulate engineering problems in the field of specialization	√
thinking skills		
C1	The ability to communicate effectively with those concerned with the field of specialization	√
C2	Recognizing the need and ability to engage in lifelong learning.	√
C3	Knowledge of contemporary issues in the field of specialization	√
C4	The broad learning necessary to understand the impact of engineering solutions on global economic, environmental and social problems	√
Generic and transferable skills (other skills related to employability and personal development)		
D1	Ability to manage and work on examinations in the fields of civil engineering and all sectors	√
D4	The ability to adapt to similar specializations (Water resources engineering, environmental engineering, architecture, renewable energies, ……)	√

15. Teaching and Learning Strategies

Strategies	Encourage students' participation in solving exercises, while improving and expanding their critical thinking skills. This will be accomplished through interactive classroom and tutorial programs and by looking at types of simple experiments that include some sampling activities of interest to students.

10- Outcomes of the bachelor's program in technical engineering according to the guidelines of the National Council for Programmatic Accreditation for Technical Engineering Education, the Academic Accreditation for Engineering and Technology (ABET), and the International Engineering Alliance (IEA).	
a - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
b - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
c- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	
d- Designs systems, components, or processes for large-scale engineering problems that fit the objectives of the educational program.	
e- Works effectively as a member or leader in a specialized engineering team.	√

f- Identifies, analyzes and solves large-scale engineering problems.	√
g - Identify and utilize appropriate technical literature as well as apply written documents, oral communications, and graphics in both technical and non-technical environments.	√
h- Participates in self-directed continuing professional development.	√
i - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
j - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
k- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	

22. Objectives of the educational program: Due to the rapid scientific and technological progress in the field of Engineering Geology, the Building Technology Engineering Department is working to achieve clear strategic objectives that will help it achieve a prominent position within the academic communities, and they are becoming clear.			
A- Maintaining and improving the quality of the curriculum	A1	Introducing scientifically and internationally updated study materials in the study of the specialty of Engineering Geology and keeping pace with rapid scientific development through direct contact with decision-makers for construction engineering in all parts of the world and direct contact with colleges and institutes specialized in construction engineering .	√
	A2	Continuous evaluation and development of curricula.	√
	A3	Linking student projects and research to community needs.	√
	A4	Expanding students' concepts with field visits , seminars , and training in projects and companies in the building and construction sector.	√
B - Modernizing and opening laboratories by providing them with the latest technical equipment and equipment in the field of specialization and managing them with skilled technicians.	B1	Students use the latest modern laboratory and programming technologies	√
C- Providing the best university environment for faculty and students	C1	Providing air-conditioned classrooms equipped with the latest display devices, providing offices for teachers, green spaces, a club, and a library.	√
D- Maintaining the technical development of faculty members	D1	Encouraging participation and effective scientific visits in conferences and technical meetings, especially with the administrations of Iraqi companies, state and international departments, and international training companies.	√
	D2	Continuous review and evaluation of student and faculty activities	√
	D3	Continuous review and evaluation of student and faculty activities Encouraging students' initiatives and achievements in various academic, artistic and religious fields with the teaching staff	√
E- Knowledge production	E1	Conducting distinguished theoretical and applied research for students with the faculty	√
	E2	Encouraging scientific publishing and stimulating the collective work of research groups from different disciplines	√

	E3	Striving to increase sources of funding for practical and theoretical research for students and faculty through publishing in local and international engineering journals	√
F- Initiatives	F1	Initiatives to reduce administrative routine and facilitate work procedures through educational guidance and developing the relationship between students and teachers.	√
G- Activating and strengthening ties with public government agencies and the private sector	G1	Organizing conferences, seminars and educational courses	√
	G2	Encouraging consulting work and providing services at the professional level in all engineering specializations (technology incubator)	√

23. Course structure											
Week	Hours	Required learning outcomes		Name of the unit or topic	Learning method		Direct assessment method		Indirect assessment method		
1-4	8	Knowledge and understanding	√	**1-Introduction to the earth science, crust and interior of the earth 2-Minerals and physical properties 3-Factors effecting on the mineral physical properties 4-Mineral classification 5-Clay minerals, Minerals Expansive soil 6-Rocks, Classification of rocks ,igneous rocks 7-Sedimentary rocks, classification of sedimentary rocks**	The direct method is .through lectures	√	Written tests		Interviews or questionnaires to survey graduates' opinions		
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions		
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant		Interviews or questionnaires to survey student .opinions		
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters		
5-8	8	Knowledge and understanding	√	**1-Metamorphic rocks, Stabilization of rock slopes 2-An engineering classification of rock materials 3-Weathering and erosion, weathering agents on structures 4-Soil, Soil profile, Soil forming processes 5-Properties of engineering soil 6-Properties of engineering rocks 7-Geological structure , Dipping layer**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions		
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions		
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.		
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters		

9-11	6	Knowledge and understanding	√	**1-Folds, Conformities and Disconformities 2-Faults, Joints, Effect of Faults and Joints on structures 3-Surface water and underground water 4-Site investigation 5-Mass movement, causes of mass movement, classification of mass movement, creep, creep causes and treatment, landslides, causes of landslides, Earthquake due to landslides**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
12-15	8	Knowledge and understanding	√	**1-Geological investigation, Geophysical investigation 2-Geological sites of reservoirs, Ground reservoirs, Underground reservoirs 3-Dams and tunnels, Type of Dams, loads on Dams, Classification of tunnels and nomenclature, Construction of tunnels.**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

24. Course evaluation: Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.				
quizzes	homework	class activities	mid-exam	Final/theoretical exam
20 %	10%	10%	10%	50%

Physical Geology", Mc-Graw Hill, Eleventh edition	Required textbooks
1– ن . دنكان . ترجمة كنانة محمد ثابت،1980،"الجيولوجيا الهندسية وميكانيك الص 2–كنانة محمد ثابت & محمد عمر العشو ،1993"أسس الجيولوجيا للمهندسين"، المو	
	Recommended supporting books and references (scientific journals, reports....)
	Electronic references, Internet sites

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

University: Al-Furat Al-Awsat Technical University
College: Engineering Technical College/ NAJAF
Department: Building & Construction Eng.Technologies
Name lecturer: Nadia Moneem Al-Abdaly
.Scientific title: ASST.Prof
Academic qualification: Doctorate
Work location: Building & Construction Eng.Technologies

Course Description Form 2023/2024

29-	Course Name
Construction Materials	
30-	Course Code
ATU16021	
31-	Semester / Year
2024/2023	
32-	Description Preparation Date:
2024/6/1	
33-	Available Attendance Forms:
Lectures in the presence of students and online if necessary	
34-	Number of study hours (total)/number of units (total)
15 week / 9 units	
35-	Name of the course administrator (if there is more than one teaching staff, all of their names will be mentioned
Name: Dr. Nadia Moneem AL-Abdaly Email: inj.nad@atu.edu.iq	

16. Expected learning outcomes of the program		
Knowledge and understanding		
A1	Ability to apply knowledge in mathematics, science, and engineering.	√
A2	Understand the professional and ethical responsibilities of the field of specialization.	√

A3	Ability to evaluate course outcomes with faculty, industry and professional practitioners, as well as employers and graduate students to improve them	√
A4	Teaching leadership skills and the value of quality commitment, ethical behavior and respect for others	√
Subject-specific skills		
B1	Ability to work and integrate into multidisciplinary teams	√
B2	Ability to design and conduct experiments as well as analyze and interpret data.	√
B3	The ability to use modern techniques, engineering skills and tools to practice engineering.	√
B4	Ability to identify and formulate engineering problems in the field of specialization	√
thinking skills		
C1	The ability to communicate effectively with those concerned with the field of specialization	√
C2	Recognizing the need and ability to engage in lifelong learning.	√
C3	Knowledge of contemporary issues in the field of specialization	√
C4	The broad learning necessary to understand the impact of engineering solutions on global economic, environmental and social problems	√
Generic and transferable skills (other skills related to employability and personal development)		
D1	Ability to manage and work on examinations in the fields of civil engineering and all sectors	√
D4	The ability to adapt to similar specializations (Water resources engineering, environmental engineering, architecture, renewable energies, ……)	√

17. Teaching and Learning Strategies

Strategies	Encourage students' participation in solving exercises, while improving and expanding their critical thinking skills. This will be accomplished through interactive classroom and tutorial programs and by looking at types of simple experiments that include some sampling activities of interest to students.

10- Outcomes of the bachelor's program in technical engineering according to the guidelines of the National Council for Programmatic Accreditation for Technical Engineering Education, the Academic Accreditation for Engineering and Technology (ABET), and the International Engineering Alliance (IEA).	
a - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
b - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
c- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	
d- Designs systems, components, or processes for large-scale engineering problems that fit the objectives of the educational program.	

e- Works effectively as a member or leader in a specialized engineering team.	√
f- Identifies, analyzes and solves large-scale engineering problems.	√
g - Identify and utilize appropriate technical literature as well as apply written documents, oral communications, and graphics in both technical and non-technical environments.	√
h- Participates in self-directed continuing professional development.	√
i - Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities.	√
j - Selects and applies knowledge of mathematics, engineering, technology, and other sciences to solve engineering problems that require the application of applied principles, procedures, or methodologies.	√
k- Conducts the required tests, experiments, and measurements, analyzes and interprets their results, and applies experimental results to improve engineering processes.	

26. Objectives of the educational program: Due to the rapid scientific and technological progress in the field of Construction Materials the Building Technology Engineering Department is working to achieve clear strategic objectives that will help it achieve a prominent position within the academic communities, and they are becoming clear.			
A- Maintaining and improving the quality of the curriculum	A1	Introducing scientifically and internationally updated study materials in the study of the specialty of Construction Materials and keeping pace with rapid scientific development through direct contact with decision-makers for construction engineering in all parts of the world and direct contact with colleges and institutes specialized in construction engineering .	√
	A2	Continuous evaluation and development of curricula.	√
	A3	Linking student projects and research to community needs.	√
	A4	Expanding students' concepts with field visits , seminars , and training in projects and companies in the building and construction sector.	√
B - Modernizing and opening laboratories by providing them with the latest technical equipment and equipment in the field of specialization and managing them with skilled technicians.	B1	Students use the latest modern laboratory and programming technologies	√
C- Providing the best university environment for faculty and students	C1	Providing air-conditioned classrooms equipped with the latest display devices, providing offices for teachers, green spaces, a club, and a library.	√
D- Maintaining the technical development of faculty members	D1	Encouraging participation and effective scientific visits in conferences and technical meetings, especially with the administrations of Iraqi companies, state and international departments, and international training companies.	√
	D2	Continuous review and evaluation of student and faculty activities	√
	D3	Continuous review and evaluation of student and faculty activities Encouraging students' initiatives and achievements in various academic, artistic and religious fields with the teaching staff	√
E- Knowledge production	E1	Conducting distinguished theoretical and applied research for students with the faculty	√

	E2	Encouraging scientific publishing and stimulating the collective work of research groups from different disciplines	√
	E3	Striving to increase sources of funding for practical and theoretical research for students and faculty through publishing in local and international engineering journals	√
F- Initiatives	F1	Initiatives to reduce administrative routine and facilitate work procedures through educational guidance and developing the relationship between students and teachers.	√
G- Activating and strengthening ties with public government agencies and the private sector	G1	Organizing conferences, seminars and educational courses	√
	G2	Encouraging consulting work and providing services at the professional level in all engineering specializations (technology incubator)	√

27. Course structure											
Week	Hours	Required learning outcomes		**Theoretical Syllabus**	Learning method		Direct assessment method		Indirect assessment method	
1	2	Knowledge and understanding	√	**Physical properties & standard specification for construction materials , Types of metallic materials , Non metallic materials .**	The direct method is .through lectures	√	Written tests		Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant		Interviews or questionnaires to survey student .opinions	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
2	2	Knowledge and understanding	√	**.** Clay bricks : Definition , Classification , Properties , Types , Advantages & disadvantages of clay bricks , Type of defects , Standard specification .	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

3	2	Knowledge and understanding	√	.Sand-lime brick : Properties , Standard tests & specification. Glass bricks , Concrete bricks : Properties , Standard tests & specification . Concrete blocks : Types , Uses , Engineering properties , Standard specification . Cellular concrete blocks : Properties , Standard tests & specification .	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
4	2	Knowledge and understanding	√	Beam-columns: introduction, stresses in beam-columns, effective length of columns, design of beam-columns according to AISC ASD, method of determination initial trial section, method of equivalent load, .examples & problems	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

5	2	Knowledge and understanding	√	**Building stone : Definition , Classification , Uses & properties**	The direct method is .through lectures	√	Written tests		Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant		Interviews or questionnaires to survey student .opinions	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
6	2	Knowledge and understanding	√	Bonding materials : Classification , Chemical composition , properties & uses of common bonding materials , Standard tests & specification (Cement mortar , Cement lime mortar , Gypsum) .	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
7	2	Knowledge and understanding	√	**Flooring materials (Tiles & concrete flags) : Types , Properties ,**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	

		Subject-specific skills	√	**Standard tests & specification .**	The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
8	2	Knowledge and understanding	√	**Water proofing materials : Classification , (Liquid , Rigid & semi-rigid water proofing materials) , Types & . . uses**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

9	2	Knowledge and understanding	√	Polymers : Definition , Classification , Chemical composition , Uses . Epoxy : Definition , Properties . , Types & uses	The direct method is .through lectures	√	Written tests		Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant		Interviews or questionnaires to survey student .opinions	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
10	2	Knowledge and understanding	√	**Steel : Composition & classification , Properties , Uses & standard tests . Metallic materials (non ferrous) : Classification & use ..**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
11	2	Knowledge and understanding	√	Timber (wood) : Classification, Properties, Seasoning,	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	

		Subject-specific skills	√	Types of defect , Standard tests .	The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
12	2	Knowledge and understanding	√	Insulating materials : . Types , Properties Acoustical materials : . Types , Properties	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

13	2	Knowledge and understanding	√	**Protective coating (paints) : Composition .. . , Types**	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

14	2	Knowledge and understanding	√	Timber (wood) : Classification, Properties, Seasoning, Types of defect , Standard tests .	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	
15	2	Knowledge and understanding	√	Bituminous materials (Asphalt) : Sources & type , Chemical composition , Properties , Uses & . . tests	The direct method is .through lectures	√	Written tests	√	Interviews or questionnaires to survey graduates' opinions	
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams	√	Interviews or questionnaires to survey employers' opinions	
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant	√	Interviews or questionnaires to survey student opinions.	
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation		external assessmenters	

11. Course evaluation: Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.				
quizzes	homework	class activities	mid-exam	Final/theoretical exam
20 %	10%	10%	10%	50%

12. Learning and teaching resources	
1. Materials of Construction / R.C. Smith .	Required textbooks
2. Civil Engineering Materials / N. Jackson .	Main references (sources)
3. Iraqi Standard Specification . **4. American Society for Testing Materials (ASTM) .**	Recommended supporting books and references (scientific journals, reports....)
5. انشاء المباني / يوسف الدواف **6. انشاء المباني / زهير ساكو ، آرتين ليفون**	Electronic references, Internet sites

				-Drawing of shear force and bending moments diagram	carried out in the field of .specialization		
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
-12-11 13	9	Knowledge and understanding	√	Influence line for statically determinate structures	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
-15-14 16	9	Knowledge and understanding	√	**Moving concentrated loads** maximum Criteria for Absolute maximum bending moment	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams
		thinking skills	√		Scientific seminars on the most important research carried out in the field of .specialization	√	Completion files and performance assistant
		Generic and transferable skills (other skills related to employability and personal development)	√		An interactive method by dividing students into small groups	√	Projects and observation
18-17	6	Knowledge and understanding	√	**Approximate analysis for statically indeterminate structures**	The direct method is .through lectures	√	Written tests
		Subject-specific skills	√		The subjective method is through preparing research papers and discussing them collectively	√	Oral exams