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

2024-2025

Introduction:

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

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

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T3/2906 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 academic programs and course descriptions to ensure the proper functioning of the educational process.

Concepts and terminology:

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

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

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

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

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

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

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

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

Academic Program Description Form

University Name: Al-Furat Al-Awsat Technical University.

Faculty/Institute: Al-Mussaib Technical Institute / Babylon.

Scientific Department: Department of Water Resources Techniques.

Academic or Professional Program Name: Irrigation and Drainage

Final Certificate Name: Technical Diploma.

Academic System: Annual/second stage, Annual/first stage.

Description Preparation Date: 15/9/2024

File Completion Date:12/2/2025

Signature:

Head of DepartmentName:

Asst. Prof. Dr. Ameer Hashim Hussein

Date: 20/4/2025

Signature:

Scientific Associate Name:

Lecturer .Dr. Mohammed Hadi Sabri

Date: 20/4/2025

جامعة الفرات الأوسط التقنية
المعهد التقني / المسيب
قسم تقنيات الموارد المائية

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Asst. Lecturer: Walaa Hussein Allawi

Date: 20/04/2025

Signature:

جامعة الفرات الأوسط التقنية
المعهد التقني المسيب
شعبة ضمان الجودة والأداء الجامعي

Approval of the Dean

Asst. Prof. Dr. Malik Neima Hawas

20.4.2025

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1. Program Vision

The Department of Water Resources Techniques / Irrigation and Drainage branch seeks to:

1. **Educational systems that achieve excellence, proficiency, and quality by investing in human resources, available opportunities, and knowledge as a strategic wealth.**
2. **Enhancing the ability to research and learn and ensuring that everyone contributes to building a renewable economy based on knowledge that contributes to raising their standard of living and achieving sustainable development, as that is the safe way to face challenges keep pace with developments.**
3. **Develop the department is on the map of productive of departments and the university is on the map of developed and modern universities that export distinguished human scientific competencies and are able to compete regionally and globally.**

2. Program Mission

1. **Technical cadres graduated with a high level of education and training.**
2. **Providing training opportunities for all age groups.**
3. **Participation in the transfer and localization of nationalism.**
4. **The use of programmed machines represents expanding the base of technical education and its modern applications.**
5. **Keeping abreast of technical developments and scientific directives in technical and vocational training.**
6. **Supporting the private sector and directing it to invest in technical and vocational education.**
7. **Providing high-quality technical education opportunities that meet the needs of society.**
8. **Providing distinguished study programs governed by local and international quality standards.**

3. Program Objectives

1. **Graduate technical staff who can survey agricultural or arable lands**
2. **calculate the quantities of cut and fill for irrigation and drainage projects,**
3. **observation and regulation operation of irrigation system**
4. **determine the water demand for irrigation**
5. **Carry out maintenance and operation of irrigation and drainage projects and installation.**
6. **Operation and maintain sprinkler and drip irrigation systems.**

4. Program Accreditation

The Iraqi classification of scientific departments in universities.

5. Other external influences

There is a close relationship with the labour market that receives our graduates.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements	22 First stage + second stage	120 First stage + second stage	100%	Basic
Summer Training	There is summer training	Satisfied	Satisfied	none
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First Level		Hydraulics & Applications	2	2
First Level		Principles of Irrigation	2	2
First Level		Engineering Mechanics	3	-
First Level		Surveying	2	3
First Level		Engineering Drawing	-	3
First Level		Mathematics	3	-
First Level		Mechanical Workshops	-	4
First Level		Human rights and Democracy	1	-
First Level		Computer Applications /1	-	1
First Level		English Language	1	-
First Level		Arabic Language	1	-
Second Level		Hydrology	2	2
Second Level		Irrigation and Hydraulic Structures	1	3
Second Level		Modern Irrigation Techniques	1	3
Second Level		Drainage	2	2
Second Level		Soil Mechanics	1	2
Second Level		Construction Materials and Quantitative Survey	1	3
Second Level		Project	-	2
Second Level		Computer Applications /2	-	1
Second Level		English Language	1	-
Second Level		Baath crimes	1	-
Second Level		Arabic Language	1	-

8. Expected learning outcomes of the program

Knowledge

1. Understanding the fundamental principles of **hydraulics, engineering mechanics, soil mechanics, and construction materials**.
2. Knowledge of the basics of **irrigation, drainage, and irrigation technologies** and their relation to water resources.
3. Comprehension of the principles of **surveying and engineering drawing** and their practical applications in water resources projects.
4. Proficiency in **mathematics, English, and Arabic languages** as essential tools for learning and scientific communication.
5. Awareness of **computer fundamentals and software applications** supporting the field.

6. Familiarity with **human rights, democracy, and national history** and their impact on student awareness.
7. Basic understanding of **hydrology and water science** and their role in the environment and society.

Skills

1. Applying theoretical concepts in **laboratory experiments and mechanical workshops**.
2. Using **surveying and drawing tools** in the design and implementation of fieldwork.
3. Ability to **analyze data** using mathematics and computer applications.
4. Developing **written and oral communication skills** in both Arabic and English.
5. Completing **small-scale projects** within collaborative teamwork.
6. Enhancing the ability to **solve engineering problems** related to irrigation, drainage, and hydraulics.
7. Mastering **technical skills** to utilize modern programs and technologies in water resources.

Ethics

1. Commitment to **professional ethics** and scientific responsibility in academic and research work.
2. Respect for **human rights, democracy, and cultural diversity**.
3. Strengthening **citizenship values** and national belonging.
4. Promoting **teamwork and collaboration** among students.
5. Dedication to **sustainable management and preservation of water resources**.
6. Adoption of **seriousness, accuracy, and discipline** in both practical and academic performance.

9. Teaching and Learning Strategies

Lecture, workshop, laboratory, methodological training, summer training, communication through electronic scientific platforms.

10. Evaluation methods

Oral exams, written exams, semester exams, final exams, daily evaluations, tests, and examinations are conducted using blended learning (in-person and electronic).

11. Faculty

1- Prof. Dr. Mohsin Jasim Nasir

2- Asst. Prof Dr. Majeed Rasheed Sabaa

3- Prof. Wisam Abdul Abbas AbdulAllah

4- Asst. Prof Dr. Khalid Mohammed Bresim

5- Asst. Prof Dr. Ameer Hashim Hussein

6- Lecturer. Alaa Ali Salman

7- Asst. Lecturer Ameer Abid Muslim Shamkhi

8- Asst. Lecturer Nadwan Majeed Ali

9- Asst. Lecturer Ghosson Natiq Ismaeel

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	Genera	Special			Staff	Lecturer
Professor	Water resources	Water resources			1	
Professor	Environmental Eng.	Environmental Eng.			1	
Assistant Professor	Civil Eng.	Geotechnic Eng.			1	
Assistant Professor	Civil Eng.	Water resources			1	
Assistant Professor	Civil Eng.	Materials Eng.			1	
Lecturer	Civil Eng.	Structure Eng.			1	
Assistant Lecturer	Mechanic Eng.	Power Eng.			2	
Assistant Lecturer	Physics	Astronomy			1	

Professional Development

Mentoring new faculty members

1- Participation in modern teaching methods courses.

2- Participation in computer courses in general and precise specializations.

3- Participation in Arabic and English language courses.

4- Participation in courses to develop scientific and training capabilities in general and precise specializations.

Professional development of faculty members
1- Encouraging participation in conferences, seminars, courses and training workshops. Global, international and local in the specialty of flour and general. 2- Publishing scientific research in international, international and local journals in specific and general fields to keep pace with the latest developments in scientific fields. 3- Joint cooperation between faculty members and state departments and institutions in conducting various scientific studies within the specialty that address a problem in society and developing the skills and capabilities of faculty members. 4- Participation in seminars and training courses to develop the competence of faculty members to use the latest means and methods in the teaching and learning process to keep pace with the latest global developments in this field. 5- Encouraging faculty members to obtain graduate certificates, higher diplomas, masters, and doctorates to develop the cognitive and scientific capabilities of faculty members. 6- Encouraging faculty members to raise academic levels by promoting them to obtain higher academic titles.

12. **Acceptance Criterion**
Admission type: Central Total: Graduates of the scientific branch.

13. **The most important sources of information about the program**
https://ims.atu.edu.iq/?page_id=12287&lang=en

14. Program Development Plan
1. Providing academic support opportunities in organizing field visits 2. Providing a suitable classroom environment that enables instructors to diversify teaching strategies 3. Providing information technology in the campus library 4. Screening additional scientific films to familiarize students with the latest examinations worldwide.

Program Skills Outline

Year/ Level	Course Code	Course Name	Basic or optional	Required program Learning outcomes																		
				Knowledge							Skills							Ethics					
				A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5	C6
First Level		Hydraulics & Applications	Basic	✓	✓						✓	✓						✓					
First Level		Principles of Irrigation	Basic	✓		✓					✓		✓					✓					
First Level		Principles of Engineering Mechanics	Basic	✓			✓				✓			✓				✓					
First Level		Mathematics	Basic				✓				✓		✓					✓					
First Level		Surveying	Basic	✓				✓			✓				✓			✓					
First Level		Principles of Engineering Drawing	Basic	✓					✓		✓					✓		✓					
First Level		Mechanical Workshops	Basic	✓							✓	✓						✓	✓				

First Level		Human rights and Democracy	Basic	✓							✓	✓						✓	✓				
First Level		Computer Basics	Basic					✓			✓			✓					✓				✓
First Level		English Language	Basic					✓							✓			✓	✓				
First Level		Arabic Language	Basic					✓							✓			✓	✓	✓			✓
Second Level		Hydrology	Basic	✓	✓						✓							✓					
Second Level		Irrigation and Hydraulic Structures	Basic	✓	✓						✓	✓						✓					
Second Level		Modern Irrigation Techniques	Basic	✓		✓					✓		✓					✓					
Second Level		Drainage	Basic	✓		✓					✓		✓					✓					
Second Level		Soil Mechanics	Basic	✓		✓					✓			✓				✓					
Second Level		Construction Materials and Quantitative Survey	Basic	✓				✓			✓			✓				✓					
Second Level		Project	Basic	✓	✓	✓					✓	✓	✓					✓	✓	✓			

Second Level		Computer Applications/2	Basic	✓							✓			✓					✓				
Second Level		English Language	Basic	✓							✓							✓					
Second Level		Baath crimes	Basic	✓							✓	✓							✓				
Second Level		Arabic Language	Basic	✓							✓								✓				

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

The First Stage

Semester One

Course Description Form

1. Course Name:	
Hydraulics & Applications	
2. Course Code:	
Department of Water Resources Techniques	
3. Semester / Year:	
Annual / 2024-2025	
4. Description Preparation Date:	
15-12-2024	
5. Available Attendance Forms:	
Attendance in class	
6. Number of Credit Hours (Total) / Number of Units (Total)	
120 hours / 8 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. Mohsin Jasim Nasir Email: inm.mohs@atu.edu.iq	
8. Course Objectives	
Course Objectives	1- Teaching the student the effect of fluids in the state of movement and stability and their relationship to the drainage of open and closed channels 2- Determine the capacity of the required pumps and select them to benefit from them in irrigation sites and other relevant sites 3- Enabling him to conduct all laboratory tests related to reproducing water quality, theories of agglomeration, and chemicals used in water filtration.
Teaching and Learning Strategies	
Strategy	1- Using the computer to present scientific subject when explaining And clarifying. 2- Follow the discussion method in explaining and facilitate the understanding. 3- Liquidity and evaluation work after the end of the lecture. 4- Self-education method while giving students a set of important scientific references.

9. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Educate students on the Safety precautions in the hydraulics laboratory and laboratory Reports.	Safety precautions in hydraulics laboratory, Laboratory Reports	Theoretical lectures, use of testing devices for laboratory experiments	Oral evaluation -Tests -Reports
2	4	Introducing the student to Fluid properties (Mass density, Weight density, Relative	Fluid properties (Mass density,Weight density,Relative	Theoretical lectures use devices for laboratory experiments	Oral evaluation -Tests -Reports
3	4	Introducing the student to Fluid properties Relative density (by hydrometer), Density by pycnometer.	Fluid properties Relative density (by hydrometer), Density by pycnometer.	Theoretical lectures use devices for laboratory experiments	Oral evaluation --Tests -Reports
4	4	Educate student the Safety precautions in hydraulics laboratory, Laboratory Reports	Safety precautions in hydraulics laboratory, Laboratory Reports	Theoretical lectures use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
5	4	Educate student about Pressure measuring instruments.	Pressure measuring instruments, Calibration of Bourden gauge.	Theoretical lectures use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
6	4	Educate student about Pressure measuring Calibration of Bourden gauge.	Pressure measuring, Calibration of Bourden gauge.	Theoretical lectures use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
7	4	Informing the student about Forces on a submerged plane surface	Forces on a submerged plane surface	Theoretical lectures use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
8	4	Educate students about Measuring Discharge in closed channels using	Measuring Discharge in closed channels by Weight and Volume methods.	Theoretical lectures use of testing	Oral evaluation --Tests -Reports

		Weight and Volume methods.		devices for laboratory experiments	
9	4	Educate students on the Conformation of Continuity equation (constant diameter, variable diameter, branching) flow	Conformation of Continuity equation (constant diameter, variable diameter, branching) flow	Theoretical lectures use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
10	4	Educate students about the Conformation of the Bernoulli equation.	Conformation of Bernullis equation.	Theoretical lectures use devices for laboratory experiments	Oral evaluation --Tests -Reports
11	4	Educate students the Bernoulli equation.	Conformation of Bernullis equation.	Theoretical lectures use devices for laboratory experiments	Oral evaluation --Tests -Reports
12	4	Educate students about Friction loss in Pipes (Major head losses)	Friction loss in Pipes (Major head losses)	Theoretical lectures use devices for laboratory experiments	Oral evaluation --Tests -Reports
13	4	Educate students about Friction loss in Pipes (Minor head losses), Sudden Contraction and sudden Enlargement.	Friction loss in Pipes (Minor head losses), Sudden Contraction, Sudden Enlargement.	Theoretical lectures use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
14	4	Informing the student about Friction loss in Pipes (Minor head losses) in fitting, Valves, and Elbows test.	Friction loss in Pipes (Minor head losses) in fitting, Valves, Elbows	Theoretical lectures use of testing devices for laboratory experiments	Oral Evaluation -Tests -Reports
15	4	The students are educated on the Types of fluid flow in pipes (Reynold's Experiment))	Types of fluid flow in pipes (Reynold's Experiment))	Theoretical lectures use of testing devices for laboratory experiments	Oral evaluation -Tests -Reports
16-17	4	Flow through pipes (Compound pipe, Equivalent pipe, pipes in Parallel, Branching Pipe systems)	Flow through pipes (Compound pipe, Equivalent pipe, pipes in Parallel, Branching Pipe systems)	Theoretical lectures, use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports

18-19	4	Application of Bernoulli's Equation (Orifices and Gates): Coefficient of contraction. Coefficient of velocity. Coefficient of discharge.	Application of Bernoulli's Equation (Orifices and Gates): Coefficient of contraction. Coefficient of velocity. Coefficient of discharge.	Theoretical lectures use devices for laboratory experiments	Oral evaluation --Tests -Reports
20-21	4	Submerged Weirs, Advantages & disadvantages of weirs Rectangular weirs, Triangular Weirs, trapezoidal Weirs.	Submerged Weirs, Advantages & disadvantages of weirs Rectangular weirs, Triangular Weirs, trapezoidal Weirs.	Theoretical lectures use devices for laboratory experiments	Oral evaluation --Tests -Reports
22	4	Flow Measurement in Pipes: Orifice meter, pitot tube, venturi meter and nozzle.	Flow Measurement in Pipes: Orifice meter, pitot tube, venturi meter and nozzle.	Theoretical lectures use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
23-24	4	Momentum equation	Momentum equation	Theoretical lectures use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
25-26	4	Flow in open channels: Design of canal: Rectangular canal, Trapizoidal canal. Manning's equation for steady uniform flow. Chezy's equation for steady uniform flow. Optimum shape of hydraulic cross-section. The hydraulic jump, Froude number.	Flow in open channels: Design of canal: Rectangular canal, Trapizoidal canal. Manning's equation for steady uniform flow. Chezy's equation for steady uniform flow. The optimum shape of hydraulic cross-section. The hydraulic jump, Froude number.	Theoretical lectures use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
27	4	Open Channels Measurements: Traditional flow measurements (weirs, current meter, anemometer, Propeller), floats (pitot, parashall flume. Remote sensing measurements:	Open Channels Measurements: Traditional flow measurements (weirs, current meter, anemometer, Propeller), floats (pitot, parashall flume. Remote sensing measurements:	Theoretical lectures use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
28-29	4	The pumps: Types, Pump hydraulics, Pump	The pumps: Types, Pump hydraulics, Pump	Theoretical lectures use of testing	Oral evaluation --Tests

		terminologies (Discharge, Horse Power, Efficiency.	terminologies (Discharge, Horse Power, Efficiency.	devices for laboratory experiments	-Reports
30	4	Computer Software for Hydraulics Applications	Computer Software for Hydraulics Applications	Theoretical lectures use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports

10. Course Evaluation

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

11.Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Fluid Mechanics, Part 1 and Part 2, written by Dr. Jamil al-Mala'ika 2- Experiments in hydraulics / University of Mosul
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Principles of Irrigation	
2. Course Code:	
Department of Water Resources Techniques	
3. Semester / Year:	
Annual / 2024-2025	
4. Description Preparation Date:	
15-12-2024	
5. Available Attendance Forms:	
Attendance in class - Electronically in google meet and classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
120 hours / 8 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Lec. Nadwan Majeed Ali Email: nadwan.ali.ims@atu.edu.iq	
8. Course Objectives	
Course Objectiv	1. Introducing the student to methods of delivering water and utilizing it to irrigate agricultural lands 2. Acquiring the necessary skills to implement the Orai project, its irrigation systems, and how to conduct them 3. Enabling him to conduct all laboratory tests related to reproducing water quality, theories of agglomeration, and chemicals used in water filtration. 4. Conduct various physical and chemical tests related to water quality 5. Conducting calculations for the distribution of irrigation networks.
Teaching and Learning Strategies	
Strategy	1- Using the computer to present scientific subject when explaining And clarifying. 2- Follow the discussion method in explaining and facilitate the understanding. 3- Liquidity and evaluation work after the end of the lecture. 4- Self-education method while giving students a set of important scientific references.

9. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Educate student the science of irrigation, its definition, the benefits of irrigation, an idea about the types of irrigation	The science of irrigation, its definition, the benefits of irrigation, an idea about the types of irrigation	Theoretical lectures	Oral evaluation --Tests -Reports
2	4	Introducing the student to Soil, physical characteristics of soil, types of water in soil, ability of soil to retain water, soil classification	Soil, physical characteristics of soil, types of water in soil,	Theoretical lectures	Oral evaluation --Tests -Reports
3	4	Introducing the student to Soil, physical characteristics of soil, types of water in soil, ability of soil to retain water, soil classification	Soil, physical characteristics of soil, types of water in soil, ability of soil to retain water, soil classification	Theoretical lectures, use devices for for laboratory experiments	Oral evaluation --Tests -Reports
4	4	Educate student the Field capacity, wilting point, saturation, available and unavailable water	Field capacity, wilting point, saturation, available and unavailable water	Theoretical lectures, use of testing devices for for laboratory experiments	Oral evaluation --Tests -Reports
5	4	Educate student about Soil moisturation and the methods of measuring it	Soil moisturation and the methods of measuring it	Theoretical lectures, use of testing devices for for laboratory experiments	Oral evaluation --Tests -Reports
6	4	Student Learn about water seepage and seepage, the relationship between soil and seepage, and irrigation water preparation.	Water seepage and seepage, the relationship between soil and seepage	Theoretical lectures, use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
7	4	Student Learn about water seepage and	Water seepage and seepage, the relationship	Theoretical lectures, use	Oral evaluation

		seepage, the relationship between soil and seepage, and irrigation water preparation.	between soil and seepage, and irrigation water preparation.	of testing devices for laboratory experiments	--Tests -Reports
8	4	Educate student about Water consumption and methods for measuring it.	Water consumption and methods for measuring it 1	Theoretical lectures, use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
9	4	Educate student about Water consumption and methods for measuring it.	Water consumption and methods for measuring it 2	Theoretical lectures, use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
10	4	Educate student the Water rater, calculating irrigation depth, determining the number and periods of irrigation, irrigation efficiency	Water rater, calculating irrigation depth, determining the number and periods of irrigation	Theoretical lectures, use devices for laboratory experiments	Oral evaluation --Tests -Reports
11	4	Educate student the Water rater, calculating irrigation depth, determining the number and periods of irrigation, irrigation efficiency	Water rater, calculating irrigation depth, determining the number and periods of irrigation, irrigation efficiency	Theoretical lectures, use devices for laboratory experiments	Oral evaluation --Tests -Reports
12	4	Educate student about how Calculating sections for open channels and drainages using equations (Mannick, Chezi, Darcy, optimal hydraulic section)	Calculating sections for open channels and drainages using equations (Mannick, Chezi, Darcy, optimal hydraulic section))	Theoretical lectures, use devices for laboratory experiments	Oral evaluation --Tests -Reports
13	4	Educate student about Field surveys for irrigation and drainage projects, general planning for irrigation and drainage networks	Field surveys for irrigation and drainage projects.	Theoretical lectures, use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports
14	4	Educate student about Field surveys for irrigation and drainage projects, general	Field surveys for irrigation and drainage projects, general planning for irrigation and drainage networks.	Theoretical lectures, use of testing	Oral Evaluation -Tests -Reports

		planning for irrigation and drainage networks		devices for laboratory experiments	
15	4	The student educte the Levels of open channels, drawing the longitudinal and cross-sections of the channels	Levels of open channels, drawing the longitudinal and cross-sections of the channels	Theoretical lectures, use of testing devices for laboratory experiments	Oral evaluation -Tests -Reports
16-17	4	Educate student the Leakage from channels	Leakage from channels	Theoretical lectures	Oral evaluation --Tests -Reports
18-19	4	Introducing the student to Application of channels, its benefits, types of lining, materials used in liningSoil.	Application of channels, its benefits, types of lining, materials used in lining	Theoretical lectures	Oral evaluation --Tests -Reports
20-21-22	4	Introducing the student to land adjustment and leveling works (calculating depths of excavation and backfilling)	Land adjustment and leveling works (calculating depths of excavation and backfilling)	Theoretical lectures, use devices for for laboratory experiments	Oral evaluation --Tests -Reports
23-24	4	Educate student the Surface irrigation 1	Surface irrigation	Theoretical lectures, use of testing devices for for laboratory experiments	Oral evaluation --Tests -Reports
25	4	Educate student about strip irrigation 2	Strip irrigation	Theoretical lectures, use of testing devices for for laboratory experiments	Oral evaluation --Tests -Reports
25-27	4	Student Learn about furrow irrigation3	Furrow irrigation	Theoretical lectures, use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports

28-29-30	4	Computeres applications of irrigation3	Computeres applications of irrigation	Theoretical lectures, use of testing devices for laboratory experiments	Oral evaluation --Tests -Reports

10. Course Evaluation

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

11.Learning and Teaching Resources

Required textbooks (curricular books, if any)	- Irrigation and drainage engineering / Dr. Charles Shukri, College of Engineering, University of Baghdad 1981 - Hydrology and applications - Baqir Kashif Al-Ghita - Irrigation Engineering - Nazih Asaad - publishing house, Alexandria University
Main references (sources)	1- Basics of agricultural irrigation - Dr. Fathi Ibrahim, New publishing house, 1976 2- Irrigation Engineering - Dr. Nazih Asaad Younan - publishing house, Alexandria University, 1976 3- Irrigation Principles and Practices , O.W. Israelsen and V. E. Hansen, John Wiley and Sons Inc., 1976. 4- Irrigation Engineering, Cimmerian, John Wiley sons, Inc 1966.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Engineering Mechanics
2. Course Code:
Department of Water Resources Techniques
3. Semester / Year:
Annual / 2024-2025
4. Description Preparation Date:
20-12-2024
5. Available Attendance Forms:
Attendance in class
6. Number of Credit Hours (Total) / Number of Units (Total)
90 hours / 6 units
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Mohsin Jasim Nasir Email: inm.mohs@atu.edu.iq
8. Course Objectives

Course Objectiv	1- Teaching the student the effect of fluids in the state of movement and stability and their relationship to the drainage of open and closed channels 2- Determine the capacity of the required pumps and select them to benefit from them in irrigation sites and other relevant sites 3- Enabling him to conduct all laboratory tests related to reproducing water quality, theories of agglomeration, and chemicals used in water filtration.
Teaching and Learning Strategies	
Strategy	1- Using the computer to present scientific subject when explaining And clarifying. 2- Follow the discussion method in explaining and facilitate the understanding. 3- Liquidity and evaluation work after the end of the lecture. 4- Self-education method while giving students a set of important scientific references.

9. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
2-1	3	Educate Student about Introduction about strength of materials, Centroids of simple shapes	Introduction about strength of materials, Centroids of simple shapes	Theoretical lecture.	Oral evaluation
4-3	3	Educate Student about Centroids of complex shapes	Centroids of complex shapes	Theoretical lecture.	Oral evaluation
6-5	3	Educate Student about Moment of inertia for the simple shapes	Moment of inertia for the simple shapes	Theoretical lecture.	Short exam
8-7	3	Educate Student about Moment of inertia for the complex shapes	Moment of inertia for the complex shapes	Theoretical lecture.	Short exam
10-9	3	Educate Student about Strength of materials, definition of stress, types of stresses factor of safety	Strength of materials, definition of stress, types of stresses factor of safety	Theoretical lecture.	Short exam
12-11	3	Educate Student about Strain, hook's law	Strain, hook's law	Theoretical lecture.	Oral evaluation
14-13	3	Educate Student about Lateral strain, poison's ratio	Lateral strain, poison's ratio	Theoretical lecture.	Short exam
16-15	3	Educate Student about Shear force and bending moment diagrams	Shear force and bending moment diagrams	Theoretical lecture.	Short exam
18-17	3	Educate Student about Bending stress for beams	Bending stress for beams	Theoretical lecture.	Oral evaluation
20-19	3	Educate Student about Shear stress for beams	Shear stress for beams	Theoretical lecture.	Short exam
22-21	3	Beams which making from two materials	Beams which making from two materials	Theoretical lecture.	Short exam
24-23	3	Educate Student about Reinforced concrete beams	Reinforced concrete beams	Theoretical lecture.	Short exam
26-25	3	Educate Student about Moment of inertia for the simple shapes	Moment of inertia for the simple shapes	Theoretical lecture.	Short exam

28-27	3	Educate Student about Moment of inertia for the complex shapes	Moment of inertia for the complex shapes	Theoretical lecture.	Short exam
30-29	3	Educate Student about Moment of inertia for the complex shapes	Moment of inertia for the complex shapes))	Theoretical lecture.	Short exam

10. Course Evaluation

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

11.Learning and Teaching Resources

Required textbooks (curricular books, if any)	1-Higdon Archie and William B., (1968) "Engineering Mechanics", 3rd, edition, United States, prentice -Hall 2-Singer, Ferdinand L., (1975),"Engineering Mechanics", 3rd edition, New York, Harper and Row publisher 3- Meriam. L. G., Engineering Mechanics, Statics, Volume I, 3rd ed
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Mathematics
2. Course Code:
Department of Water Resources Techniques
3. Semester / Year:
Annual / 2024-2025
4. Description Preparation Date:
15/2/2025
5. **Available Attendance Forms**:
Presence in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
90 hours / 6 units
7. Course administrator's name (mention all, if more than one name)
Name: **Asst. Lec. Ghosoon Natiq Ismael** Email: ghosoon.ismael@atu.edu.iq

8. Course Objectives	
Course Objectives	1- Developing the student's ability to use mathematics in scientific applications and benefit from it in other engineering lessons. 2- Teaching the student the different ways to represent equations, mathematical laws, various data, and form curves In the chart there are different types of charts that suit the purpose of drawing them.
9. Teaching and Learning Strategies	
Strategy	1- Use the blackboard and computer to present the scientific material when explaining and clarifying. 2- Using modern strategies in learning. 3- Asking students to perform classroom and home exercises through solutions to assignments and specialized strengthening exercises at the end of each topic. 4- Self-learning method

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Enable students to know Differentiation and differentiation / derivative using definition / laws of derivatives, algebraic	Differentiation and differentiation / derivative using definition / laws of derivatives, algebraic functions	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and

		functions / functions, terms and their derivatives	/ functions, terms and their derivatives		homework assignments.
2	3	Enabling students to. know The derivative of the rule of complex functions (Rule Chain).	The derivative of the rule of complex functions (Rule Chain).	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
3	3	Enabling students to kn The derivative of the rule of complex functions (Rule Chain). ow .		Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
4	3	Enabling students to know Differentiation of inverse functions.	Differentiation of inverse functions.	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
5	3	Enabling students to know Finding maximum and minimum limits, areas of increase, areas of decrease, points of inflection, and areas of convexity and concavity	Finding maximum a minimum limits, are of increase, areas of decrease, points of inflection, and areas convexity and concavity	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
6	3	Enabling students to know Tangent and perpendicular equation	Tangent and perpendicular equati	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
7-8	3	Enabling students to know Differential applications in the field of irrigation, speed and acceleration	Differential applications in the fi of irrigation, speed a acceleration	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.

9	3	Enabling students to know Integration / indefinite integration.	Integration / indefin integration.	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
10	3	Enabling students to know Integration of logarithmic and homotopic functions	Integration of logarithmic and homotopic functions	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
11	3	Enabling students to know Numerical integration in integration methods - methods	Numerical integration in integration methods - methods	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
12	3	Enabling students to know Using the trapezoid rule - Simpson's rule in integration	Using the trapezoid rule - Simpson's rule in integration	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
13	3	Enable students to know Frequency distributions – plotting the curve and histogram	. Frequency distributions – plotting the curve and histogram	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
14-15	3	Enabling students to know Find the arithmetic mean, median, mode and variance	Find the arithmetic mean, median, mode and variance	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
16	3	Enable students to know Differentiation and differentiation / derivative using definition / laws of	Differentiation and differentiation / derivative using definition / laws of derivatives,	Use the board and computer to display scientific material when	Daily tests.Grades for class and

		derivatives, algebraic functions / functions, terms and their derivatives	algebraic functions / functions, terms and their derivatives	explaining and clarifying	homework assignments.
17	3	Enabling students to. know The derivative of the rule of complex functions (Rule Chain).	The derivative of the rule of complex functions (Rule Chain).	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
18	3	Enabling students to kn The derivative of the rule of complex functions (Rule Chain). ow .		Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
19	3	Enabling students to know Differentiation of inverse functions.	Differentiation of inverse functions.	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
20	3	Enabling students to know Finding maximum and minimum limits, areas of increase, areas of decrease, points of inflection, and areas of convexity and concavity	Finding maximum and minimum limits, areas of increase, areas of decrease, points of inflection, and areas of convexity and concavity	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
21	3	Enabling students to know Tangent and perpendicular equation	Tangent and perpendicular equati	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
22-23	3	Enabling students to know Differential applications in the field of irrigation, speed and acceleration	Differential applications in the field of irrigation, speed and acceleration	Use the board and computer to display scientific material when	Daily tests.Grades for class and

				explaining and clarifying	homework assignments.
24	3	Enabling students to know Integration / indefinite integration.	Integration / indefinite integration.	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
25	3	Enabling students to know Integration of logarithmic and homotopic functions	Integration of logarithmic and homotopic functions	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
26	3	Enabling students to know Numerical integration in integration methods - methods	Numerical integration in integration methods - methods	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
27-28	3	Enabling students to know Using the trapezoid rule - Simpson's rule in integration	Using the trapezoid rule - Simpson's rule in integration	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
29	3	Enable students to know Frequency distributions – plotting the curve and histogram	. Frequency distributions – plotting the curve and histogram	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.
30	3	Enabling students to know Find the arithmetic mean, median, mode and variance	Find the arithmetic mean, median, mode and variance	Use the board and computer to display scientific material when explaining and clarifying	Daily tests.Grades for class and homework assignments.

11.Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, class and homework assignments, daily, monthly and final written exams, reports...etc.

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Calculus _ Thomas
Main references (sources)	Shawm series written by A. Joseph
Recommended books and references (scientific journals, reports...)	Methods for solving differential equations, written by Ahmed Al-Samarrai and Yahya Abdel Saeed
Electronic References, Websites	Reputable and reliable internet sources

Course Description Form

1. Course Name:
Surveying
2. Course Code:
Department of Water Resources Techniques
3. Semester / Year:
Annual / 2024-2025
4. Description Preparation Date:
15-12-2024
5. Available Attendance Forms:
Attendance in class
6. Number of Credit Hours (Total) / Number of Units (Total)
150 hours / 10 units
7. Course administrator's name (mention all, if more than one name)
Name: Lec. Alaa Ali Salman Email: inm.alaa@atu.edu.iq

8. Course Objectives	
Course Objectives	1- Teaching the student the basics of surveying, its use for civil engineering and water resources purposes, and conducting related calculations. 2- Qualifying the student to use various surveying equipment for civil engineering and water resources work, implementing maps for projects, and enabling him to plan, supervise, and implement these projects.
9. Teaching and Learning Strategies	
Strategy	1- Using the computer to present scientific subject when explaining And clarifying. 2- Follow the discussion method in explaining and facilitate the understanding. 3- Liquidity and evaluation work after the end of the lecture. 4- Self-education method while giving students a set of important scientific references.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Educate Student about The basic principles of surveying, its divisions, uses, and purposes	The basic principles of surveying, its divisions, uses, and purposes	Theoretical lecture and practical application	Oral evaluation
2	5	Educate Student how to Measure distances on sloping and winding horizontal land	Measuring distances on sloping and winding horizontal land	Theoretical lecture and practical application	Oral evaluation
3	5	Leveling, its methods, definitions related to it, the ways of finding the differences among points	Leveling, its methods, definitions related to it, the ways of finding the differences among points	Theoretical lecture and practical application	Short exam
4-6	5	Educate Student how to Calculate the elevations in two ways, types of leveling , errors and mistakes in leveling	Calculating elevations in two ways, types of leveling , errors and mistakes in leveling	Theoretical lecture and practical application	Short exam
7	5	Educate Student about Topographic maps are ways of representing landforms	Topographic maps are ways of representing landforms	Theoretical lecture and practical application	Short exam
8-9	5	Educate Student about contour lines, their characteristics, drawing and uses.	Contour lines, their characteristics, drawing and use	Theoretical lecture and practical application	Oral evaluation
10	5	Learn about the theodolite device of all available types and how to check and adjust the device	The theodolite device of all available types and how to check and adjust the device	Theoretical lecture and practical application	Short exam
11	5	Educate Student how to measure horizontal angles of a central angle using the iterative method	Measuring horizontal angles of a central angle using the iterative method	Theoretical lecture and practical application	Short exam
12	5	Educate Student how to measure vertical angles (perpendicular)	Measuring vertical angles (perpendicular)	Theoretical lecture and practical application	Oral evaluation
13	5	Educate Student how to measure the interior	Measure the interior horizontal angles of a closed polygon	Theoretical lecture and	Short exam

		horizontal angles of a closed polygon		practical application	
14	5	Educate Student how to measure the horizontal distances of the sides of a closed polygon using a theodolite device, measuring tape, and leveling ruler	Measuring the horizontal distances of the sides of a closed polygon using a theodolite device, measuring tape, and leveling ruler	Theoretical lecture and practical application	Short exam
15	5	An applied exercise on calculating the directions A2, B1, calculating the horizontal and vertical components, and correcting the components and coordinates	An applied exercise on calculating the directions A2, B1, calculating the horizontal and vertical components, and correcting the components and coordinates	Theoretical lecture and practical application	Short exam
16	5	Educate Student about Measuring horizontal angles with an open polygon after fixing the points, measuring horizontal distances and directions, measuring the horizontal angle between two walls, and measuring the length of a target (building) that cannot be reached.	Measuring horizontal angles with an open polygon after fixing the points, measuring horizontal distances and directions, measuring the horizontal angle between two walls, and measuring the length of a target (building) that cannot be reached.	Theoretical lecture and practical application	Oral evaluation
17	5	Educate Student how Reconnaissance, the process of selecting triangulation points, and measuring the base line for triangulation, while making corrections to the tape measure	Reconnaissance, the process of selecting triangulation points, and measuring the base line for triangulation, while making corrections to the tape measure	Theoretical lecture and practical application	Oral evaluation
18	5	Measuring angles using a triangulation grid and the necessary calculations and corrections for triangulation grids	Measuring angles using a triangulation grid and the necessary calculations and corrections for triangulation grids	Theoretical lecture and practical application	Short exam
19	5	Projection of the horizontal curve using a theodolite device only	Projection of the horizontal curve using a theodolite device only	Theoretical lecture and practical application	Short exam

20	5	Projection of the horizontal curve using a theodolite device and a tape measure	Projection of the horizontal curve using a theodolite device and a tape measure	Theoretical lecture and practical application	Short exam
21	5	Projection of the horizontal circular curve using longitudinal measurements only: a. Method of coordinates from one of the tangents (Baker method) B. Coordinate method of curved total hypotenuse C- The method of setting points whose distance from the first curve is known	Projection of the horizontal circular curve using longitudinal measurements only: a. Method of coordinates from one of the tangents (Baker method) B. Coordinate method of curved total hypotenuse C- The method of setting points whose distance from the first curve is known	Theoretical lecture and practical application	Short exam
22	5	Projection of the horizontal circular curve using the column method and the method of classifying the arcs successively	Projection of the horizontal circular curve using the column method and the method of classifying the arcs successively	Theoretical lecture and practical application	Short exam
23	5	Projecting a map of a building or project using a theodolite device and a tape measure	Projecting a map of a building or project using a theodolite device and a tape measure	Theoretical lecture and practical application	Short exam
24	5	Identify the different tachymeter devices and read their arcs to measure horizontal and vertical distances	Identify the different tachymeter devices and read their arcs to measure horizontal and vertical distances	Theoretical lecture and practical application	Oral evaluation
25	5	Performing the process of correcting, leveling and raising beams for a closed polygon using a tachometer and its leveling ruler	Performing the process of correcting, leveling and raising beams for a closed polygon using a tachometer and its leveling ruler	Theoretical lecture and practical application	Short exam
26	5	Performing the process of correcting, leveling, and raising beams for a closed polygon using the Alidad telescope device	Performing the process of correcting, leveling, and raising beams for a closed polygon using the Alidad telescope device	Theoretical lecture and practical application	Short exam

27	5	Electronic measuring devices, gyrometers, teleometers, gyroscopes, and destomes.	Electronic measuring devices, gyrometers, teleometers, gyroscopes, and destomes.	Theoretical lecture and practical application	Oral evaluation
28	5	Water surveying, introduction, its objectives, tidal theory, average sea surface, measuring the base line using the vertical angle method of the mast, the wire method, the method of fixing anchor points, floating buoys in trigonometry operations	Water surveying, introduction, its objectives, tidal theory, average sea surface, measuring the base line using the vertical angle method of the mast, the wire method, the method of fixing anchor points, floating buoys in trigonometry operations	Theoretical lecture and practical application	Short exam
29	5	Coastal surveying, and how to find depths using different methods and tools and devices used in the process of finding depths	Coastal surveying, and how to find depths using different methods and tools and devices used in the process of finding depths	Theoretical lecture and practical application	Short exam
30	5	The method of fixing the locations of points, the method of timing and orientation, the orientation and angle from the shore, the method of pressures perpendicular to the shore - the three-point method	The method of fixing the locations of points, the method of timing and orientation, the orientation and angle from the shore, the method of pressures perpendicular to the shore - the three-point method	Theoretical lecture and practical application	Short exam

11. Course Evaluation

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

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	1. Construction Survey" , scolt G.A., 1977 . 2. "Engineering Surveying problem and solution", I.A. Shepherd, 1978. 3. "Surveying " by Harry Boucharc . 6", 1975 4. "Elementary Surveying " by Russell C.Brinkw" ,1978. 5. “Surveying for civil Engineer ", Kiss am 1956.
Recommended books and references (scientific journals, reports...)	Different sources in the library
Electronic References, Websites	Various sources from the Internet

Course Description Form

1. Course Name:

Principles of Engineering Drawing

2. Course Code:

Department of Water Resources Techniques

3. Semester / Year:

Annual/ 2024-2025

4. Description Preparation Date:

15–2–2025

5. Available Attendance Forms:

presence in the classroom

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

90 hours / 6 units.

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

Name: Lecturer Wafa Jalel Karrem Email: inm.ame@atu.edu.iq

8. Course Objectives

Course Objectives	• Teaching the student, the rules of engineering drawing using the AutoCAD program for engineering drawing on the computer. • Teaching the student, the basic principles of engineering drawing and computer drawing programs in an effective and fast way to enable him to express his ideas through it. • Qualifying the student to draw and read engineering maps with knowledge of architectural and construction terms that are used in maps.

9. Teaching and Learning Strategies

Strategy	1- Using the computer to present scientific material when explaining and clarifying. 2- Using modern strategies in learning. 3- Asking students to conduct classroom and home exercises in preparing engineering drawings related to shapes different geometry depending on the unit. 4- Self-education method, giving students a set of names of useful scientific sources.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Importance of engineering drawing-Applying AutoCA in engineering drawing – Measurement of drawing sheet-Overview of AutoCA window.	Importance of engineerin drawing-Applying AutoCAD in engineering drawing –Measurement c drawing sheet-Overview AutoCAD window.	Show, expl	Class and homework assignments and exams
2	3	Types of lines in engineeri drawing- Use of pull-down menus for lines and texts.	Types of lines in engineering drawing- Us	Show, expl and draw	Class and homework assignments

			of pull-down menus for lines and texts.		and exams
3-4	3	Drawing of basic objects.	Drawing of basic objects	Show, expl and draw	Class and homework assignments and exams
5-6	3	Modifying of drawings – Use of status bar.	Modifying of drawings – Use of status bar.	Show, expl and draw	Class and homework assignments and exams
7-8-9	3	Drawing operations – Dimensioning – Applicatio	Drawing operations – Dimensioning – Applications.	Show, expl and draw	Class and homework assignments and exams
10-11-1 13	3	Isometric drawing – Drawi a shape containing a square rectangle, circle and triangl	Isometric drawing – Drawing a shape containi a square, rectangle, circle and triangle.	Show, expl and draw	Class and homework assignments and exams
14-15	3	Theory of projection – Orthographic projection for simple shapes.	Theory of projection – Orthographic projection f simple shapes.	Show, expl and draw	Class and homework assignments and exams
17-18	3	Dimensions on isometric drawings and objects.	Dimensions on isometric drawings and objects.	Show, expl and draw	Class and homework assignments and exams
19-20-2	3	Drawing of third view by u of other two views.	Drawing of third view by use of other two views.	Show, expl and draw	Class and homework assignments and exams
22-23-2	3	Sectioning of objects – Hatching – Types of hatchi lines – Drawing of sectione views.	Sectioning of objects – Hatching – Types of hatching lines – Drawing sectioned views.	Show, expl and draw	Class and homework assignments and exams
25-26-2	3	Drawing of sectioned view by Knowing one view.	Drawing of sectioned vie by Knowing one view.	Show, expl and draw	Class and homework assignments and exams
28	3	Drawing of partly sectioned views.	Drawing of partly sectior views.	Show, expl and draw	Class and homework assignments and exams
29-30	3	Applications and projects.	Applications and projects	Show, expl and draw	Class and homework assignments and exams

11.Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, dailyoral, monthly, or written exams, reports .... etc	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Bob Macfarlane, Beginning AutoCAD 200 Great Britain , 2004
Main references (sources)	Ellen Finkelstien , AutoCAD 2007 , Wiley publishing,Inc. ,2007 , USA.
Recommended books and references (scientific journals, reports...)	Books, periodicals, and dissertations related to engineering drawing and information derived from the Internet.
Electronic References, Websites	Various websites for engineers who specialize in engineering drawing, in addition to browsing electronic lecture presentations on the websites that explain how to draw different geometric shapes and benefit from them.

Course Description Form

1. Course Name:

Mechanical Workshops

2. Course Code:

Department of Water Resources Techniques

3. Semester / Year:

Semester 1

4. Description Preparation Date:

15-12-2025

5. Available Attendance Forms:

Attendance in class - Electronically in google meet and classroom

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

120 hours / 8 units

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

Name: Asst. Lec. Nadwan Majeed Ali
Email: nadwan.ali.ims@atu.edu.iq

8. Course Objectives

Course Objectives	Acquiring manual skills such as using hand tools and measuring tools and the ability to work and operate machines in the optimal manner

9. Teaching and Learning Strategies

Strategy	1- Using the computer to present scientific subject when explaining And clarifying. 2- Follow the discussion method in explaining and facilitate the understanding. 3- Liquidity and evaluation work after the end of the lecture. 4- Self-education method while giving students a set of important scientific references.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	The filings Focus on training the student on proper filing work and how to use measuring	The filings Focus on training the student on proper filing work and how to use measuring tools, files,	lecture	Continuous evaluation

		tools, files, and cutting with a saw, drill, and drill. A- Occupational safety inside the workshop B- Measuring tools: (included ruler - measuring tape - paper insert and how to use and maintain them) C- The planning process (shank): The number of foundation surfaces used, which are (the straight leg - the planning leg - the tail and how to make a side - the display material - the right angle - the ordinary calligrapher - the sensitive calligrapher - the height gauge - the universal protractor and the angle measurement. D- File files, their types - shapes - how to use, maintain and clean them E- Sickles, types and methods of attaching crafts to them, a simple exercise in filing and planning operations, according to the executive drawing	and cutting with a saw, drill, and drill. A- Occupational safety inside the workshop B- Measuring tools: (included ruler - measuring tape - paper insert and how to use and maintain them) C- The planning process (shank): The number of foundation surfaces used, which are (the straight leg - the planning leg - the tail and how to make a side - the display material - the right angle - the ordinary calligrapher - the sensitive calligrapher - the height gauge - the universal protractor and the angle measurement. D- File files, their types - shapes - how to use, maintain and clean them E- Sickles, types and methods of attaching crafts to them, a simple exercise in filing and planning operations, according to the executive drawing		
2	4	Cutting with a chainsaw, hand saw and hand saw weapon - installing the saw weapon - conditions that must be met in the sawing process	Cutting with a chainsaw, hand saw and hand saw weapon - installing the saw weapon - conditions that must be met in the sawing process	lecture	Continuous evaluation

3	4	Drilling: Types of drills - Types of primers and how to use them - Methods of extracting broken screws The exercise includes filing - planning - drilling, according to the dimensions given in the executive drawing	Drilling: Types of drills - Types of primers and how to use them - Methods of extracting broken screws The exercise includes filing - planning - drilling, according to the dimensions given in the executive drawing	lecture	Continuous evaluation
4	4	Welding: Training in the welding workshop is focused on the various tools, tools and devices present within the workshop in the optimal manner A- Occupational safety inside the workshop B- The number and tools used C- Electric power welding machines - their parts - how to operate them D- Welding wires, their types - their measurements - their selection - performing exercises (straight lines - compact lines - dictating an angle)	Welding: Training in the welding workshop is focused on the various tools, tools and devices present within the workshop in the optimal manner A- Occupational safety inside the workshop B- The number and tools used C- Electric power welding machines - their parts - how to operate them D- Welding wires, their types - their measurements - their selection - performing exercises (straight lines - compact lines - dictating an angle)	lecture	Continuous evaluation
5	4	Carrying out a welding exercise (gates - molds - pipes)	Carrying out a welding exercise (gates - molds - pipes)	lecture	Continuous evaluation
6	4	Oxyacetylene gas welding A- Occupational safety at work B- Types of gases used in gas welding and how to use them	Oxyacetylene gas welding A- Occupational safety at work B- Types of gases used in gas welding and how to use them	lecture	Continuous evaluation

		C- Carrying out self-welding exercises - welding with an iron wire - welding with a lead wire.	C- Carrying out self-welding exercises - welding with an iron wire - welding with a lead wire.		
7	4	Plumbing: Focus on training the student on how to plan on metal sheets, how to cut, assemble, and weld the sheets using planning tools, manual and mechanical cutting, bending tools, and manual and mechanical welding tools 0 A- Occupational safety inside the workshop B- Measuring tools C- Planning tools D- Types of plates and their measurements Practical exercise using the mentioned tools (simple exercise using the mentioned tools)	Plumbing: Focus on training the student on how to plan on metal sheets, how to cut, assemble, and weld the sheets using planning tools, manual and mechanical cutting, bending tools, and manual and mechanical welding tools 0 A- Occupational safety inside the workshop B- Measuring tools C- Planning tools D- Types of plates and their measurements Practical exercise using the mentioned tools (simple exercise using the mentioned tools)	lecture	Continuous evaluation
8	4	A- Cutting and bending machines B- Spot welding machines Carrying out training on planning, cutting, bending and welding processes (casting molds - gates)	A- Cutting and bending machines B- Spot welding machines Carrying out training on planning, cutting, bending and welding processes (casting molds - gates)	lecture	Continuous evaluation
9	4	Connection method - manual thruster - American thruster Carrying out an exercise on planning, cutting and	Connection method - manual thruster - American thruster Carrying out an exercise on planning, cutting and connecting	lecture	Continuous evaluation

		connecting operations (refrigeration duct - water tank)	operations (refrigeration duct - water tank)		
10	4	Lathing Emphasis is placed on training the student on various lathe machines, training on the measuring tools needed to carry out a variety of exercises, how to make external and internal teeth, and how to choose cutting pens. A- Occupational safety inside the lathe workshop B- The lathe, its parts and how to work on it - Speed tables - Types of turning pens - Connecting the workpieces - Adjusting the center - Tools C- Carrying out lathe operations (level - straight - graded) with the use of measuring tools	Lathing Emphasis is placed on training the student on various lathe machines, training on the measuring tools needed to carry out a variety of exercises, how to make external and internal teeth, and how to choose cutting pens. A- Occupational safety inside the lathe workshop B- The lathe, its parts and how to work on it - Speed tables - Types of turning pens - Connecting the workpieces - Adjusting the center - Tools C- Carrying out lathe operations (level - straight - graded) with the use of measuring tools	lecture	Continuous evaluation
11	4	Explaining the laws of external and internal stolen lathing	Explaining the laws of external and internal stolen lathing	lecture	Continuous evaluation
12	4	Explaining the laws of external and internal teeth Carrying out external and internal dental carving exercises	Explaining the laws of external and internal teeth Carrying out external and internal dental carving exercises	lecture	Continuous evaluation
13	4	Carpentry and models The student is trained to use tools, carpentry tools, and used measuring tools, and learn about different carpentry	Carpentry and models The student is trained to use tools, carpentry tools, and used measuring tools, and learn about different carpentry machines,	lecture	Continuous evaluation

		machines, safety procedures, and machine maintenance. A- Occupational safety inside the workshop B- Types of wood, their sources and uses C - Measuring and manual tools used in the carpentry workshop Performs an exercise to form a parallelogram, a cylinder and a hexagon	safety procedures, and machine maintenance. A- Occupational safety inside the workshop B- Types of wood, their sources and uses C - Measuring and manual tools used in the carpentry workshop Performs an exercise to form a parallelogram, a cylinder and a hexagon		
14	4	Identifying the machines in the carpentry workshop and the necessary safety and maintenance parts - Doing exercises on how to connect wood parts. Carrying out the exercise of hanging it in the form of (T and T)	Identifying the machines in the carpentry workshop and the necessary safety and maintenance parts - Doing exercises on how to connect wood parts. Carrying out the exercise of hanging it in the form of (T and T)	lecture	Continuous evaluation
15	4	Introducing the student to the methods of dyeing wood - the vertebrae (their types - their shapes). Carrying out a variety of drilling exercises	Introducing the student to the methods of dyeing wood - the vertebrae (their types - their shapes). Carrying out a variety of drilling exercises	lecture	Continuous evaluation

10.Course Evaluation

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

11.Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- plumber Prepared by: Sabah Abdel Samad Mahmoud / Saleh Nashwan Issuing authority: Ministry of Higher Education and Scientific Research Presidency of the Technical Institutes Foundation 2- lathe

	Prepared by: Majeed Nemat Issuing body: Technical Institutes Foundation Technical House for Publishing and Media 3- metal foundry Prepared by: Muhammad Rashid / Hoda Muhamma Issuing body: Technical Institutes Foundation Technical House for Publishing and Media 4- the blacksmith Prepared by: Fattah Nasser Issuing body: Technical Institutes Foundation Technical House for Publishing and Media 5- welding Prepared by: Farouk Abdel Moein Makkia / Mustaf Ibrahim Issuing body: Technical Institutes Foundation Al Dar Publishing and Media 6- filings Prepared by: Muhammad Rashid Radwan Issuing body: Technical Institutes Foundation Technical House for Publishing and Media
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course description form

1. **Course Name**:
Human Rights and Democracy
2. Code The decision:
Department of Water Resources Techniques
3. the year:
Annual
4. date Preparation this description:2024
15-1-2025
5. **Available forms of attendance**:
Attendance in the classroom - electronic
6. Number of study hours (total)/number of units (total):
30 hours / 2 units
7. Name of the course administrator (if more than one name is mentioned)
Asst. Lec. Yasemein AbdulAbbas Hamad
8. Course objectives

Objectives of the academic program 1- Enabling the student to understand the nature of human rights and freedoms 2- Establishing the foundations for the correct exercise of rights and freedoms. 3- Spreading the culture of human rights and strengthening the democratic experience in the region. 4- Consolidating the promotion of citizenship, spreading the culture of tolerance, spreading the spirit of tolerance and drying up the sources of terrorism. 5- Identify international standards and national legislation related to human rights and freedoms. 1. **Required program outcomes and teaching, learning and evaluation methods** a- **Cognitive goals** a1- Knowledge and understanding a2- Study all human rights conventions a3- Study relevant national legislation a4- Defending human rights by identifying means of protecting and promoting human rights. B - **The program's skill objectives** B1 - Enabling the student to know human rights, their development and their implications. B2 - That the student acquires skill in dealing with social phenomena in accordance with human rights principles. Teaching and learning methods 1- Explanation and clarification 2- How to display the material 3- Lecture methodEvaluation methods 1- Theoretical tests	**Objectives of the st subject**

11. StructureThe decision

The week	Hours	Name Unit/or the topic	OutputsLearningrequired	Road education	Road Evaluation
1-2		Human Rights	The introduction/ Root rights Human And its development Historically	Through lucture	Discusion
3-4	1	Human Rights	Rights Humaninag eMediator	Through lucture	Discusion and examination
5-6	1	Human Rights	Rights Humaninage the talk	Through lucture	Discusion
7-8	1	Human Rights	Recognition Contemporary As rightsHuman	Through lucture	Discusion and examination
9-10	1	Human Rights	Contents rights Human	Through lucture	Discusion
11-12	1	Human Rights	Rights Human And charters International	Through lucture	Discusion and examination
13-14	1	Human Rights	Rights Humanin Charters Regional	Through lucture	Discusion
15-16	1	Human Rights	Rights Humanin Honors Nationalism	Through lucture	Discusion and examination
17-18	1	Human Rights	review	Through lucture	Discusion
19-20	1	Human Rights	ExamOral	Through lucture	Discusion and examination
21-22	1	Human Rights	Guarantees rights Human And protect it	Through lucture	Discusion
23-24	1	Human Rights	Sources rights Human	Through lucture	Discusion and examination
25-26	1	Human Rights	Sources International	Through lucture	Discusion
27-28	1	Human Rights	Discussion General	Through lucture	Discusion and examination
29-30	1	Human Rights	Exam Editorial	Through lucture	Discusion

12. StructureInfrastructure

Human rights - its development and implications - Dr. Riad Aziz Hadi	1Booksdecidedrequired
Charter of the United Nations Human Rights Diplomacy - Basil Youssef	2the reviewerMain(Sources)

The Third World and Human Rights - Prof. Dr. Riad Aziz Hadi	ABooksAnd referencesthatrecommendWith it(MagazinesScientific, reports,....)
Human rights websites	B-the reviewerElectronic, websitesThe Internet....

13.Plandevelopment The decision Academic
Traps Students In groupsResearchAnd involve himwithinOrganizationsthe society Civil To explain rights Human And a rumor Conceptpeace And love

Course Description Form

1. Course Name:
Arabic language
2. Course Code:
Department of Water Resources Techniques
3. Semester / Year:
Annual
4. Description Preparation Date:
11-2-2025
5. Available Attendance Forms:
Attendance in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours / 2 units
7. Course administrator's name (mention all, if more than one name)
Lec. Dr. Phadhila Almusawi
8. Course Objectives

Course Objectives	1- Developing a spirit of pride in the Arabic language 2- Developing students' linguistic skills 3- Improving the professional and research level of students 4- Developing the linguistic and orthographic abilities of university students.
9. Teaching and Learning Strategies	
Strategy	

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	1	Identify the ta' al-murabbatah and the ta' fathah and differentiate between them.	Introduction to grammatical errors - the marfu' ta', the long ta', and the open ta'	Lecture	Tests
3-4	1	Recognizing the rules for writing the extended and short alifs and the solar and lunar letters	Rules for writing extended and short alifs - solar and lunar letters.	Lecture	Feedback
5-6	1	Enabling the student to differentiate between dā' and dā'	Dhaad and Dhaa	Lecture	discussion
7-8	1	Enabling the student to differentiate between the	Writing the hamza	Lecture	Feedback

		hamzat al-wasl and the qat`ah and learn how to draw the hamzat			
9-10	1	Identify punctuation marks and their role in explaining the meaning of speech	punctuation marks	Lecture	Theoretical application
11-12	1	Identify the noun and the verb and differentiate between them.	The noun, the verb, and the difference between them	Lecture	discussion
13-14	1	Identifying the objects and their parsing signs	Effects	Lecture	Feedback
15-16	1	Learn about the rules of writing numbers	the number	Lecture	Oral questions
17-18	1	Know the most common linguistic errors	Applications of common linguistic errors	Lecture	Theoretical application
19-20	1	Explaining the nun and tanween and knowing the meanings of prepositions	Noun and Tanween - meanings of prepositions	Lecture	discussion
21-22-2	1	Identify the overall aspects of administrative discourse	Formal aspects of administrative discourse	Lecture	discussion
24-25-2	1	Explaining the language of administrative discourse and its difference from the language of daily discourse	The language of administrative discourse	Lecture	Tests
27-30	1	Identify examples of administrative submissions	Examples of administrative submissions	Lecture	Tests

11.Course Evaluation

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

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	.
Main references (sources)	The golden rules of spelling and punctuation, spelling rules, clear spelling, language and grammar lessons for state employees, general Arabic for non-specialist departments
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:

Computer Applications /1

2. Course Code:

Department of Water Resources Techniques

3. Semester / Year:

Annual / 2024-2025

4. Description Preparation Date:

20/12/2024

5. **Available Attendance Forms**:

Attendance in the classroom - electronic Google Meet and Classroom

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

30 hours / 2 units

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

Name: **Asst. Lec. Ghosoon Natiq Ismaeel**
Email: ghosoon.ismael@atu.edu.iq

8. Course Objectives

Course Objectives	Learning about the program's interface, drawing and modification commands, and writing commands, then teaching the student the Windows 10 system and its applications such as the Word printing program, the Excel statistical program, and the Power Point presentation program..

9. Teaching and Learning Strategies

Strategy	1- Use the blackboard and computer to present the scientific material when explaining and clarifying. 2- Using modern strategies in learning. 3- Asking students to perform classroom and home exercises through solutions to assignments and specialized strengthening exercises at the end of each topic. 4- Self-learning method

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
2-1	**4**	Getting to know the Windows The concept of loading tasks, exiting the system and turning off the computer.	Getting to know the Windows The concept of loading tasks, exiting the system and turning off the computer.	Lecture + laboratory	Short exam
5-4-3	**6**	Learn about keyboard shortcuts	Learn about keyboard shortcuts	Lecture + laboratory	Short exam

7-6	**4**	Getting to know the Word document printing program	Getting to know the Word document printing program	Lecture + laboratory	Short exam
9-8	**4**	Getting to know the Word document printing program	Getting to know the Word document printing program	Lecture + laboratory	Short exam
11-10	**4**	Getting to know the Word document printing program	Getting to know the Word document printing program	Lecture + laboratory	Short exam
-13-12 14	**6**	Learn about the statistical analysis program Excel	Learn about the statistical analysis program Excel	Lecture + laboratory	Short exam
-16-15 17	**6**	Learn about the statistical analysis program Excel	Learn about the statistical analysis program Excel	Lecture + laboratory	Short exam
-19-18 20	**6**	Learn about the statistical analysis program Excel	Learn about the statistical analysis program Excel	Lecture + laboratory	Short exam
22-21	**4**	Learn about the Power Point presentation program	Learn about the Power Point presentation program	Lecture + laboratory	Short exam
24-23	**4**	Learn about the Power Point presentation program	Learn about the Power Point presentation program	Lecture + laboratory	Short exam
26-25	**4**	Learn about the Power Point presentation program	Learn about the Power Point presentation program	Lecture + laboratory	Short exam
28-27	**4**	Getting to know the Word document printing program	Getting to know the Word document printing program	Lecture + laboratory	Short exam
30-29	**4**	Learn about the statistical analysis program Excel	Learn about the statistical analysis program Excel	Lecture + laboratory	Short exam

11.Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, class and homework assignments, daily, monthly and final written exams, reports...etc.

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Computer basics and office applications A.M.D. Ziad Muhammad Abboud and Prof. Dr. Ghassan Hamid Majeed Abdel Majeed
Main references (sources)	Computer basics and office applications A.M.D. Ziad Muhammad Abboud and Prof. Dr. Ghassan Hamid Majeed Abdel Majeed
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Civilian workshops
2. Course Code:
Department of Water Resources Techniques
3. Semester / Year:
Semester 2
4. Description Preparation Date:
5/1/2025
5. **Available Attendance Forms**:
Attendance in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
120 hours / 8 units
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Lec. Nadwan Majeed Ali Email: nadwan.ali.ims@atu.edu.iq
8. Course Objectives

Course Objectives	Providing the student with manual skills and qualifying him to carry out construction and road works so that he will be qualified upon graduation to be qualified to supervise the work.
9. Teaching and Learning Strategies	
Strategy	1- Showing films to present scientific material when explaining and clarifying. Explanation and clarification- How to present the example- Participation between students a contribution to collecting ideas and solutions - Method of reporting and discussion 2- Follow the discussion method to bring the material closer to the students and facilitate the understanding process. 3- Conduct tests and evaluation after the end of the lecture. 4- Self-education method, giving students a set of names of useful scientific sources. 5- Scientific visits 6- Practical application

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4 practica	Measurement processes and tools used (tape vernier, micrometer).	Measuremer processes ar tools used (tape, vernie micrometer)	During the Academicprogram, technology is used. Manytools su as Data Show (to displaylectures and illustrations) and Discussing and presenting the ideas included for the purpose of knowing the details of construction The requirements and stages of application by students	Evaluation through participation within the lecture, contribution, ar attendance - Evaluation through daily, monthly and quarterly examinations and week reports.

2	4 practica	Practical applications for carpentry works for civil constructions, including:	Practical applications for carpentry works for ci construction including:	During Academicprogram,technology is used. Manytools such as Data Show (to displa lectures an illustrations) and Discussing presenting the ideas included for purposeof knowing thedet ofconstruction The requirements and sta ofapplication by students	Evaluation through participation within the lecture, contribution, and attendance – Evaluation through daily, monthly, and quarterly examinations and weekly reports.
3	4 practica	Work: Wooden doors (press doors, packing doors).	Work: Woo doors (press doors, packing doo	During the Academic program, technology is used. Many tools such as Data Show (to display lectures and illustrations) and Discussing and presenting th ideas included for the purposeof knowing thedetails of constructi The requirements and stages of application by students	Evaluation through participation within the lecture, contribution, and attendance – Evaluation through daily, monthly, and quarterly examinations and weekly reports.
4	4 practica	Work: wooden molds.	Work: wood molds.	During the Academic program, technology is used. Manytools su as Data Show (to display lectures and illustrations) and Discussing and presenting the ideas included for the purpos of knowing thedetails of construction .The requirements a stages of application by students	Evaluation through participation within the lecture, contribution, and attendance – Evaluation through daily, monthly, and quarterly examinations and weekly reports.
5,6	4 practica	Applications or reinforcing stee making roof, bridge and column reinforcement (cutting iron, bending iron and weldi pieces).	Applications on reinforci steel, making roo bridge and column reinforceme (cutting iron bending iron and welding pieces).	During the Academic program, technology is used. Many tools such as Data Show (to display lectures and illustrations) and Discussing and presenting the ideas included fo the purposeof knowing the details of construction .The requirements and stages of application by students	Evaluation through participation within the lecture, contribution, and attendance – Evaluation through daily, monthly, and quarterly examinations and weekly reports.
7,8	4 practica	Illustrative exercises and explanations or cutting and	Illustrative exercises an explanations on cutting a	During the Academicprogram, technology is used. Many tools such as Data Show (to displaylectures and	Evaluation through participation within the lecture,

		connecting structural steel using rivets, screws, and welding.	connecting structural ste using rivets, screw and welding	illustrations) and Discussing and presenting the ideas included fo the purposeof knowing the details of construction The requirements and stages of application by students	contribution, and attendance – Evaluation through daily, monthly, and quarterly examinations and weekly reports.
9,10	4 practica	Explanation of stonework and plastering: cutting, sawing smoothing, and perforation.	Explanation stonework a plastering: cutting, sawing, smoothing, a perforation.	During the Academic program, technology is used. Many tools such as Data Show (to displaylectures and illustrations) and Discussing and presenting the ideas included fo the purpose of knowing the details of construction The requirements and stages ofapplication by students	Evaluation through participation within the lecture, contribution, and attendance – Evaluation through daily, monthly, and quarterly examinations and weekly reports.
11,12, 13	4 practica	An explanation connecting the pipes of water installations, threading (use machinery), typ of accessories pipes and methods of connecting them, sanitary sewer installations, methods of connecting.	Explanation and presentation films for connecting pipes in wat installations threading (u of mechanizati , types of accessories for pipes an methods of connecting them, sanita sewer installations methods of connecting	During the Academicprogram, Technology is used. Many tools such as Data Show (to displaylectures and illustrations) and Discussing and presenting the ideas included fo the purposeof knowing the details of construction The requirements and stages of application by students	Evaluation through participation within the lecture, contribution, and attendance – Evaluation through daily, monthly, and quarterly examinations and weekly reports.
14,15	4 practica	An explanation the different ty of pipes and the accessories, an exercise in making a water	An explanat of the differ types of pipes and their accessories,	DuringtheAcademicprogram,tech ology is used. Manytools such as Data Show (to display lectures a illustrations) and Discussing andpresenting the ideas included	Evaluation through participation within the lecture, contribution, and attendance – Evaluation through

		and sewerage foundation network for a residential hous	an exercise i making a wa and sewerag foundation network for residential house.	forthe purposeof knowing thedetails of construction The requirements and stages of application by students	daily, monthly, and quarterly examinations and weekly reports.

11.Course Evaluation

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

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Building construction and factory construction / Adnan Al-Dahan
Main references (sources)	Building Construction Book / ZuhairSako + ArtinLevon Civil Engineering / by SayedBassiouni Unified building code for parts one and two / ImadDarwish The book on constructing buildings, written by Atef Al-Suhairi. The book on constructing buildings, written by AnisJawad
Recommended books and references (scientific journals, reports...)	Books in the department library and the institute's central library
Electronic References, Websites	Building materials and raw materials used in construction book / electronic

Course description form

1. Course name :
English language
2. Course code :
Department of Water Resources Techniques
3. Semester /year :
Annual
4. Date setting up this description :
17/2/2025
5. Forms for attendants available :
Attend in the Class room
6. Number of hours of communication (the all) / number of units (all):
30 hours / 2 units
7. The administrator name is administrator (if more than a little name)
Asst. Lec. Ameer Muslim Shamkhi ameer.shamki124@atu.edu.iq
8. Rating Course

Improving students' skills in English langua developing their reading, writing and listening abilit and enable them to write scientific reports in Eng language.	**Goals of the course**
9. Education and learning strategies	
1- Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration. 2- Use modern strategies in learning. 3- Demand of students with rival and decorative exercises through duties and reliability exercises. 4- Self-learning method.	**The strategy**

10. The structure of the course

The week	Hours	Name of the unit or the subject	Learning outputs required	Method of learning	Method of evaluation
1-2	**1**	Introductions, (am/ are/ is.)What's this in English?	Introductions, (am/ are/ is.) What's this in English?	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration.	Daily tests. Grades of grace and domestic duties.
3-4	**1**	Numbers 1 – 10. Plurals. Good morning!	Numbers 1 – 10. Plurals. Good morning! .	The Us plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.

5-6	**1**	Countries, am/are/is. Her name's. She's from. Questions. Adjectives good/ awful. Numbers 11 – 30	Countries, am/are/is. Her name's. She's from. Questions. Adjectives good/ awful. Numbers 11 – 30	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
7-8	**1**	Jobs, is/ isn't. Questions & negatives. Vocabulary revision. Social expression (1)	Jobs, is/ isn't. Questions & negatives. Vocabulary revision. Social expression (1(	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
9-10	**1**	Passive's, my/our/her. The family, has/have. Vocabulary revision. The alphabet	Passive's, my/our/her. The family, has/have. Vocabulary revision. The alphabet	. Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
11-12	**1**	Sports/food/drink. Present simple-1/you/they. Language and nationalities. How much is it?(.	Sports/food/drink. Present simple-1/you/they. Language and nationalities. How much is it.)?	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
13-14	**1**	The time. Present Simple-he/she. Prepositions in/at/on. Words that go together. Days of the week	The time. Present Simple-he/she. Prepositions in/at/on. Words that go together. Days of the	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
15-16	**1**	Questions. Pronouns me/him. Possessive adjectives my/his/this/that. Adjectives happy/miserable. Can I..?	Questions. Pronouns me/him. Possessive adjectives my/his/this/that. Adjectives happy/miserable. Can I?..	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
17-18	**1**	Rooms & furniture. There is/there are. Prepositions on/under/next to. Vocabulary revision. Directions	Rooms & furniture. There is/there are. Prepositions on/under/next to. Vocabulary revision. Directions	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
19-20	**1**	Saying years, was/were. Past Simple-irregular verbs have/do/go. Months & dates	Saying years, was/were. Past Simple-irregular verbs have/do/go. Months & dates	Use the plateau (the blackboard) and computer to view the scientific material	Daily tests. Grades of grace and domestic duties.

				when explaining and illustration	
21-22	**1**	Past Simple-regular verbs. Questions & negatives. Making conversation. Sport & leisure activities. Going sightseeing	Past Simple-regular verbs. Questions & negatives. Making conversation. Sport & leisure activities. Going sightseeing	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
23-24	**1**	Can/can't. Adverbs-very well/not at all. Requests & offers. Adjective + noun. Everyday problems	Can/can't. Adverbs-very well/not at all. Requests & offers. Adjective + noun. Everyday problems	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
25-26	**1**	Some/any. I'd like a../I'd like to. Offering things. Like & would like. Food	Some/any. I'd like a. /I'd like to. Offering things. Like & would like. Food	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
27-28	**1**	Colours & clothes. Present Continuous. Present Simple or Continuous?. Opposite verbs-leave-arrive. What's the matter?	Colours & clothes. Present Continuous. Present Simple or Continuous?. Opposite verbs-leave-arrive. What's the matter?	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
29-30	**1**	Futureplans. Grammar revision. Vocabulary revision. Form filling. Social expressions 2	Future plans. Grammar revision. Vocabulary revision. Form filling. Social expressions 2	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.

11.Rating rapporteur

Distribution of the degree from 100 on the task of students who are required by the student, daily and daily, daily, monthly and final editorials, and final

12.Learning and teaching sources

***Newheadway Plus, Beginner Workbook by John & Liz Soars Press. Oxford**	The required script books (methodology that found)
Newheadway Plus, Pre-Intermediate Student's book by John & Liz Soars Press. Oxford	Home References (Sources)
Newheadway Plus, Pre-Intermediate Student's book by John & Liz Soars Press. Oxford	The newly bonded books and references (scientific journals, reports ....)
What is the Internet from written and written lessons	Electronic References, Locations of ....Internet

The Second Stage

Course Description Form

1. Course Name:
Hydrology
2. Course Code:
Department of Water Resources Techniques
3. Semester / Year:
Annual system/ 2024-2025
4. Description Preparation Date:
7/1/2025
5. Available Attendance Forms:
Classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
120/8
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Wissam Abdul Abbas Abdullaah Email: inm.wsm@atu.edu.iq

8. Course Objectives	
Course Objectives	• Acquire the student skills and knowledge in the basics of hydrology, methods of measuring water, discharge of streams and rivers, study of floods, tracking waves and procedures required to protect against them.
9. Teaching and Learning Strategies	
Strategy	• Use the blackboard and computer to present the scientific subjects when explaining and clarifying. • Using modern strategies in learning. • Asking students to perform classroom • Using the laboratory, with the possibility of communicating through electronic scientific platforms • Give home exercises after the end of each lecture to train students and know the student's understanding of the subject. • Self-learning method Use a discussion style with students to facilitate the process of understanding the lecture.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2T +2E	Identify hydrological definitions – the hydrological cycle in	Hydrological definitions – hydrological cycle in nature and hydrological equation	Lecture	Short exam

		nature and the hydrological equation			
2	2T +2E	Identification of weather conditions, weather stations and their types, measurement of heat and solar radiation, humidity	Weather, weather stations and their types, measurement of heat and solar radiation, humidity	Lecture	Short exam
3	2T +2E	Identify the Wind , Atmospheric Pressure	Wind – atmospheric pressure	Lecture	Short exam
4	2T +2E	Learn about the use of electronic computers in the follow-up and measurement of nuclear information - the use of satellites	The use of electronic computers in the follow-up and measurement of nuclear information - the use of satellites	Lecture	Short exam
5	2T +2E	Identification of precipitation, forms and types of precipition , rain measuring devices, intensity, sustainability and frequency	Shed, forms of shed, types of shed, rain measuring devices, intensity, sustainability and frequency	Lecture	Short exam
6	2T +2E	Learn about calculating rainfall rates on areas – Thiessen method	Calculation of rainfall rates on areas – Thyssen method	Lecture	Short exam
7	2T +2E	Identify the Method of Iso rain Lines – Guess the Missing Information	Rain isotope lines method – guess the missing information	Lecture	Short exam
8	2T +2E	Learn about snow cover survey – snow gauges – melting snow	Snow cover survey – snow measuring devices – melting snow	Lecture	Short exam
9	2T +2E	Identify evaporation, evaporation from water surface – evaporation from the surface of the earth	Evaporation, evaporation from water bodies – evaporation from the surface of the earth	Lecture	Short exam
10	2T +2E	Identify filtration – Filter Measurement – Calculate Filtration Rates	Filtration – Filtration Measurement – Calculation of Filtration Rates	Lecture	Short exam
11	2T +2E	Identification of groundwater, land formations, water reservoirs Stable constant flow towards wells in unconfined and confined formations	Groundwater, ground formations, reservoirs Stable constant flow towards wells in free and confined formations	Lecture	Short exam
12	2T +2E	Identify of surface runoff, methods of estimating surface runoff, rational equation	Surface Leak, Methods for Estimating Surface Fluid, Rational Equation	Lecture	Short exam
13	2T +2E	Identification of river feed basins, identification, types, river systems	River feed basins, their identification, types, river systems	Lecture	Short exam
14	2T +2E	Identify the curve of the relationship between discharge and level (calibration curve)	Curve of the relationship between discharge and level (calibration curve)	Lecture	Short exam

		determining, modifying and extending it	identification, adjustment and extension		
15	2T +2E	Recognize water levels, measurement methods and types	Water levels, measurement methods and types	Lecture	Short exam
16	2T +2E	Identify the speed of water flow in rivers, discharges, measurement methods, area and slope method	Speed of water flow in rivers, discharges, measurement methods, survey and slope method	Lecture	Short exam
17	2T +2E	Recognition of the current meter, calculation of discharges by current meter	Current meter, calculation of discharges by current meter	Lecture	Oral assessment
18	2T +2E	Identification of discharge measuring facilities – submersible dams, openings, regulators	Drainage measuring facilities – submersible dams, openings, regulators	Lecture	Oral assessment
19	2T +2E	Identify the cumulative flow curve – operation of tanks, calculation of storage volume – calculation of accepted and variable demand	Cumulative flow curve – operation of tanks, calculation of storage volume – calculation of accepted and variable demand	Lecture	Short exam
20	2T +2E	Identify sediments, their types, methods of measurement – control	Sediments, types, methods of measurement – control	Lecture	Short exam
21	2T +2E	Identify the hydrograph curve – isolate it into its components	Hydrograph – isolation to its components	Lecture	Short exam
22	2T +2E	Identify the standard time curve, derive it - its purpose	Standard time curve, derivation - its purpose	Lecture	Short exam
23	2T +2E	Identify floods, their causes – probabilities – period of return	Floods, their causes - probabilities - period of return	Lecture	Short exam
24	2T +2E	Identify flood tracking – hydrological methods of follow-up – Muskingham's method of follow-up	Flood follow-up – hydrological methods of subordination – Muskenjam's method of subordination	Lecture	report
25	2T +2E	Learn about flood control measures – earth dams and walls	Flood Control Measures – Earthen Seals and Walls	Lecture	Oral
26	2T +2E	Identification of reservoirs and dams, trimming of rivers	Reservoirs and dams, river refinement	Lecture	Short exam
27	2T +2E	Identify water sources, estimate water sources, develop water sources	Water sources, water source estimation, water resources development	Lecture	Short exam
28	2T +2E	Learn about the study of water systems and storage projects in Iraq	Study of water systems and storage projects in Iraq	Lecture	report
29-30	2T +2E	Identify statistical information, use of computers in water information analysis, statistical forecasting, frequency analysis	Statistical Information, Computer Use in Water Information Analysis, Statistical Forecasting, Repetition Analysis	Lecture	Short exam

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1- Hydrology and its Applications, Dr. Baqir Kashif Al-Ghita, University of Mosul, 1982 2- Hydrology and Principles of Irrigation Engineering, d.Mohammed Janabi, Beirut 3- Engineering Hydrology, Wilson, University of Basra Translation
Main references (sources)	1- "Engineering Hydrology", K. Subramanya, McGraw Hill, 1984 2-"Hand book of applied Hydrology", V.T. chow, McGraw Hill, New York ,1964
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Irrigation Constructions	
2. Course Code:	
Department of Water Resources Techniques	
3. Semester / Year:	
Annual system	
4. Description Preparation Date:	
15/2/2025	
5. **Available Attendance Forms**:	
Attendance in the classroom - electronic	
6. Number of Credit Hours (Total) / Number of Units (Total)	
120 hours / 8 units.	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Lec. Ameer Abid Muslim Email: ameer.shamki124@atu.edu.iq	
8. Course Objectives	
Course Objectives	• **Teach the student and provide him with the necessary technical skills about agricultural structures, their functions and components.** • **Methods for implementing and drawing sketches and maps foe each structure using the AutoCAD system by a computer for at least six.** • **Students acquire the necessary technical skills about agriculture structures and their functions** • **Identify the components and methods of implementing hydraulic structures.** • **Conducting calculations for design calculations**
9. Teaching and Learning Strategies	
Strategy	**1- Using the computer to present scientific material when explaining and clarifying.** **2- Using modern strategies in learning.** **3- Practical education applying theoretical topics in the laboratory.** **4- Self-education method, giving students a set of names of useful scientific sources in t theoretical and practical aspects.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1T+3E	Giving a preliminary idea about hydraulic structures, their types and uses	Giving a preliminary idea about hydraulic structures their types and uses.	Theoretical explanation, presentation	Class and homework assignments and short exams
2	1T+3E	Identify and interpret the terms used in drawing hydraulic structures.	The terms used in drawin hydraulic structures.	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
3	1T+3E	Identify sketches of irrigat and drainage networks and the structures built on then	Sketches of irrigation and drainage networks and th structures built on them.	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
4	1T+3E	Identify longitudinal and cross-sections of different channels and drainages	Longitudinal and cross-sections of different channels and drainages	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
5	1T+3E	Enabling the student to kn retaining walls, their functions, forces affecting them, construction sites, u and types	Retaining walls, their functions, forces affectin them, construction sites, uses and types	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
6	1T+3E	Enabling the student to kn brick retaining walls	Brick retaining walls	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
7	1T+3E	Enabling the student to kn concrete retaining walls	Concrete retaining walls	Theoretical explanation, presentation.	Class and homework assignments and short exams
8	1T+3E	Enabling the student to kn regulators, their types, components of the regulat drainage through the regulator	Regulators, their types, components of the regula drainage through the regulator	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
9	1T+3E	Enabling the student to kn regulator dimensions (upstream length, downstream length, floor thickness)	Regulator dimensions (upstream length, downstream length, floor thickness)	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams

10	1T+3E	Enabling the student to kn intermediate supports in regulators, their dimensior and specifications	Intermediate supports in regulators, their dimensic and specifications	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
11	1T+3E	Enabling the student to kn culverts, their components types, and planning locatic	Culverts, their componen types, and planning locations	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
12	1T+3E	Enabling the student to kn tubular culvert, box Culve	Tubular culvert, box Culv	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
13	1T+3E	Enabling the student to kn flow in culverts, siphons, a calculating their discharge	Flow in culverts, siphons and calculating their discharges	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
14	1T+3E	Enabling the student to kn bridges, their components, types	Bridges, their component types	Theoretical explanation, presentation	Class and homework assignments and short exams
15	1T+3E	Enabling the student to kn pedestrian bridge, cars bric	Pedestrian bridge, cars bridge	Theoretical explanation, presentation	Class and homework assignments and short exams
16	1T+3E	Enabling the student to kn spacers / Piers / Abutment quarry for bridges, bridge roof sections	Spacers / Piers / Abutmer quarry for bridges, bridge roof sections	Theoretical explanation, presentation	Class and homework assignments and short exams
17	1T+3E	Enabling the student to kn dams and reservoirs, their importance, types, plannin and selection	Dams and reservoirs, thei importance, types, planni and selection	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
18	1T+3E	Enabling the student to kn spell dams (earth and rock dams) and their specificati	Spell dams (earth and roc dams) and their specifications	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
19	1T+3E	Enabling the student to kn about gravity dams and the specifications	Gravity dams and their specifications	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
20	1T+3E	Enabling the student to kn concrete arched dams and their types	Concrete arched dams an their types	Theoretical explanation, presentation, and draw	Class and homework assignments and short exams
21	1T+3E	Enabling the student to kn constructures of energy dissipation, and their types hydraulic jump	Constructures of energy dissipation, and their type hydraulic jump	Theoretical explanation, presentation, draw and tutorial	Class and homework assignments and short exams

22	1T+3E	Enabling the student to kn the rapid descending waterfall, basin the dissipation of energy USB	The rapid descending waterfall, basin the dissipation of energy USI	Theoretical explanation, presentation, draw and tutorial	Class and homework assignments and short exams
23	1T+3E	Enabling the student to kn types of waterfalls and the discharge	Types of waterfalls and t discharge	Theoretical explanation, presentation, and tutorial	Class and homework assignments and short exams
24	1T+3E	Enabling the student to kn gates, their types, gates' perpetuation	Gates, their types, gates' perpetuation	Theoretical explanation, presentation, and tutorial	Class and homework assignments and short exams
25	1T+3E	Enabling the student to kn navigation locks, their type and methods of filling ther	Navigation locks, their types, and methods of fill them	Theoretical explanation, presentation, and tutorial	Class and homework assignments and short exams
26	1T+3E	Enabling the student to kn ships passing process	Ships passing process	Theoretical explanation, presentation and show	Class and homework assignments and short exams
27	1T+3E	Enabling the student to kn joints in hydraulic constructions, their types	Joints in hydraulic constructions, their types	Theoretical explanation, presentation, and show	Class and homework assignments and short exams
28	1T+3E	Enabling the student to kn intakes, their types, pumpi stations	Intakes, their types, pumping stations	Theoretical explanation, presentation, and show	Class and homework assignments and short exams
29	1T+3E	Enabling the student to kn rivers' trainings, their type canals riprap	Rivers' trainings, their typ canals riprap	Theoretical explanation, presentation, and show	Class and homework assignments and short exams
30	1T+3E	Enabling the student to kn the hydraulic model as a solution in hydraulic construction using a computer	The hydraulic model as a solution in hydraulic construction using a computer	Theoretical explanation, presentation, show and draw	Class and homework assignments and short exams

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Borders / Erbil Mary / Oweidat Publications / Beirut in 1971 2- Hydraulic Construction - Dr. Muhammad Al-Janabi Al-Rateb Publications for University Research

	3- "Design Text Book in Civil Engineering", Serge Lillivssky. Vol. I.. III. Chapman and Mall 1965 4- "Water Resources Engineering", Linsley and Franklin, McGraw Hill ,1971. 5- "Engineering of Large Dams", By Henry M. Tomas. 6- "Hand Book of Applied Hydraulics", Calvin Victor, McGraw Hill , 1969. 7- "Hand Book of Dam Engineering", Alfred K. Clyde Pub. Urn.
Main references (sources)	Irrigation drawing, Abdul Rasul Abdul Reda, 1993
Recommended books and references (scientific journals, reports…)	Books, periodicals, university theses, information derived from the Internet and personal experience and knowledge about hydraulic and irrigation structures.
Electronic References, Websites	Various websites for engineers who specialize in hydraulic and irrigation structures, in addition to browsing electronic lecture presentations on the websites that explain benefits of hydraulic and irrigation structures, types and location to use.

Course Description Form

1. Course Name:
Modern Irrigation Technicals
2. Course Code:
Department of Water Resources Techniques
3. Semester / Year:
Annual system
4. Description Preparation Date:
27/2/2025
5. **Available Attendance Forms**:
Attendance in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
120 hours / 8 units.
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Dr. Ameer Hashim Hussein Email: inm.ame@atu.edu.iq
8. Course Objectives

Course Objectives	• **Knowing the types of modern irrigation systems** • **Implementing drip irrigation and sprinkler irrigation projects** • **Conducting the operations of modern irrigation systems** • **Knowing how to perform maintenance on irrigation projects**
9. Teaching and Learning Strategies	
Strategy	**1- Using the computer to present scientific material when explaining and clarifying.** **2- Using modern strategies in learning.** **3- Practical education applying theoretical topics in the laboratory.** **4- Self-education method, giving students a set of names of useful scientific sources in the theoretic and practical aspects.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1T+3E	Enabling the student to know sprinkler irrigation, benefits an uses of sprinkler irrigation, disadvantages and difficulties mothed	Sprinkler irrigation, bene and uses of sprinkler irrigation, disadvantages and difficulties of mothe	Theoretical explanation an presentation.	Class and homework assignments and short exams

2	1T+3E	Enabling the student to know sprinkler irrigation system components (pumping unit, pip network, sprinklers)	Sprinkler irrigation syste components (pumping un pipe network, sprinklers)	Theoretical explanation an presentation an practical experiments in field.	Class and homework assignments and short exams
3	1T+3E	Enabling the student to know supplementary accessories for sprinkler irrigation system (valves, gauges)	Supplementary accessori for the sprinkler irrigatio system (valves, gauges)	Theoretical explanation an presentation an practical experiments in laboratory.	Class and homework assignments and short exams
4	1T+3E	Enabling the student to know types of sprinkler irrigation systems (fixed and mobile)	Types of sprinkler irrigat systems (fixed and mobil	Theoretical explanation an presentation an practical experiments in field.	Class and homework assignments and short exams
5	1T+3E	Enabling the student to know water distribution around the sprinkler. Water distribution patterns	Water distribution around the sprinkler. Water distribution patterns	Theoretical explanation an presentation, a practical experiments field.	Class and homework assignments and short exams
6	1T+3E	Enabling the student to know fixed sprinkler irrigation syste intervals between sprinklers an their arrangement, irrigation ra	Fixed sprinkler irrigation system, intervals betwee sprinklers and their arrangement, irrigation ra	Theoretical explanation an presentation.	Class and homework assignments and short exams
7	1T+3E	Enabling the student to know hydraulic sprinkler extruder, spray consistency	Hydraulic sprinkler extruder, spray consisten	Theoretical explanation an presentation.	Class and homework assignments and short exams
8	1T+3E	Enabling the student to know spray pipes, lengths and numbe number of movements	Spray pipes, lengths and numbers, number of movements	Theoretical explanation an presentation.	Class and homework assignments and short exams
9	1T+3E	Enabling the student to know calculating the energy loss by friction in pipes, pressure in the pipes	Calculating the energy lo by friction in pipes, press in the pipes	Theoretical explanation an presentation, a tutorial.	Class and homework assignments and short exams
10	1T+3E	Enabling the student to know calculating pipe diameters	Calculating pipe diamete	Theoretical explanation an presentation, a tutorial.	Class and homework assignments and short exams
11	1T+3E	Enabling the student to know main and lateral pipes system, design requirements	Main and lateral pipes system, design requireme	Theoretical explanation an	Class and homework assignments

				presentation, a tutorial.	and short exams
12	1T+3E	Enabling the student to know p design methods (flow velocity method, energy loss by friction and economic analysis method	Pipe design methods (fl velocity method, energy l by friction, and econor analysis method)	Theoretical explanation an presentation, a tutorial.	Class and homework assignments and short exams
13	1T+3E	Enabling the student to know regulatory procedures for the operation and maintenance of feeder canals and the structures built on them for mobile sprink irrigation systems	Regulatory procedures fo the operation and maintenance of feeder canals and the structures built on them for mobile sprinkler irrigation syster	Theoretical explanation an presentation, a practical experiments in field.	Class and homework assignments and short exams
14-15	1T+3E	Enabling the student to know erection and installation of fixe and semi-fixed sprinkler irrigation systems, operation ar maintenance of fixed and semi fixed sprinkler irrigation syster	Erection and installation fixed and semi-fixed sprinkler irrigation syster operation and maintenanc of fixed and semi-fixed sprinkler irrigation syster	Theoretical explanation an presentation.	Class and homework assignments and short exams
16-17	1T+3E	Enabling the student to know installing, operating and maintaining a pivot sprinkler irrigation system (pumping system, sprinkler).	Installing, operating and maintaining a pivot sprinkler irrigation syster (pumping system, sprinkler).	Theoretical explanation an presentation.	Class and homework assignments and short exams
18	1T+3E	Enabling the student to know general introduction of drip irrigation	General introduction of d irrigation	Theoretical explanation an presentation.	Class and homework assignments and short exams
19	1T+3E	Definition of a dripper, types o drippers, calculating the numbe of drippers	Definition of a dripper, types of drippers, calculating the number o drippers	Theoretical explanation an presentation, a tutorial.	Class and homework assignments and short exams
20	1T+3E	Enabling the student to know classification of dripper, findin the manufacturing coefficient c variation	Classification of dripper, finding the manufacturin coefficient of variation	Theoretical explanation an presentation, a tutorial.	Class and homework assignments and short exams
21	1T+3E	Enabling the student to know calculating the discharge coefficient, calculating the mai losses in the drip irrigation system	Calculating the discharge coefficient, calculating th main losses in the drip irrigation system	Theoretical explanation an presentation, a tutorial.	Class and homework assignments and short exams
22	1T+3E	Enabling the student to know t control head system in the drip irrigation system, calculating th pressure applied over the dripp	The control head system the drip irrigation system calculating the pressure applied over the drippers	Theoretical explanation an presentation, tutorial.	Class and homework assignments and short exams
23	1T+3E	Enabling the student to know design of main pipe, design of manifold pipe	Design of main pipe, des of manifold pipe	Theoretical explanation an	Class and homework assignments

				presentation, tutorial.	and short exams
24	1T+3E	Enabling the student to know design of the lateral pipe, calculation of secondary losses the drip irrigation system	Design of the lateral pipe calculation of secondary losses in the drip irrigatic system	Theoretical explanation an presentation, a tutorial.	Class and homework assignments and short exams
25	1T+3E	Enabling the student to know calculate pump efficiency	Calculate pump efficienc	Theoretical explanation an presentation, a tutorial.	Class and homework assignments and short exams
26	1T+3E	Enabling the student to know design of complete drip irrigati network	Design of complete drip irrigation network	Theoretical explanation an presentation, a tutorial.	Class and homework assignments and short exams
27	1T+3E	Enabling the student to know installation and operation of a drip irrigation system, self-operation	Installation and operation a drip irrigation system, self-operation	Theoretical explanation an presentation, a practical experiments in field.	Class and homework assignments and short exams
28	1T+3E	Enabling the student to know operating the control device, operating the piping network b operating the drippers and filte	Operating the control device, operating the pipi network by operating the drippers and filters	Theoretical explanation an presentation, a practical experiments in field.	Class and homework assignments and short exams
29	1T+3E	Enabling the student to know maintaining drippers, treating sediments (mineral and organic cleaning the drip irrigation system	Maintaining drippers, treating sediments (miner and organic), cleaning the drip irrigation system	Theoretical explanation an presentation, a practical experiments in field.	Class and homework assignments and short exams
30	1T+3E	Enabling the student to know operating water wells that feed sprinkler and drip irrigation systems	Operating water wells tha feed sprinkler and drip irrigation systems	Theoretical explanation an presentation, a practical experiments in field.	Class and homework assignments and short exams

11.Course Evaluation

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

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Irrigation, its basics and applications, Dr. Essam A Hadithi

	2- Design of a drip irrigation system, translated by D Samir Khalil Al-Khafaf and engineer Zaid Shahat
Main references (sources)	Field irrigation systems engineering Dr. Ahmed Youssef Hajim and Haqi Ismail
Recommended books and references (scientific journals, reports...)	Books, periodicals, university theses, information derived from the Internet and personal experience and knowledge about sprinklers and drips irrigation systems.
Electronic References, Websites	Various websites for engineers who specialize in sprinkle and drips irrigation systems, in addition to browsing electronic lecture presentations on the websites that expla benefits of sprinkls and drips irrigation systems, types an location to use them.

Course Description Form

1. Course Name:
Drainage
2. Course Code:
Department of Water Resources Techniques
3. Semester / Year:
Annual system/ 2024-2025
4. Description Preparation Date:
27/2/2025
5. Available Attendance Forms:
Classroom/electronic (google meet and Classroom)
6. Number of Credit Hours (Total) / Number of Units (Total)
120/8
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Dr. Ameer Hashim Hussein Email: inm.ame@atu.edu.iq
8. Course Objectives

Course Objectives	• Interest in excavation and land reclamation • Providing the student with information to develop the necessary experience in field investigations • Implementing excavation and land reclamation projects • Know how to perform maintenance on mining projects
9. Teaching and Learning Strategies	
Strategy	• Use the blackboard and computer to present the scientific subjects when explaining and clarifying. • Using modern strategies in learning. • Asking students to perform classroom • Using the laboratory, with the possibility of communicating through electronic scientific platforms • Give home exercises after the end of each lecture to train students and know the student's understanding of the subject. • Self-learning method Use a discussion style with students to facilitate the process of understanding the lecture.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2T +2E	Identifying drainage, introduction, excess water, its sources and effect on plants, methods	Drainage, introduction, excess water, its sources and effect on plants, methods of treating it,	Lecture	Short exam

		of treating it, controlling sources of excess water.	controlling sources of excess water.		
2	2T +2E	Learn about field investigations for drills, how to obtain hydrological information, piezometer monitoring wells, how to install them in the field, and their importance in drilling work.	Field investigations for drills, how to obtain hydrological information, piezometer monitoring wells, how to install them in the field, and their importance in drilling work.	Lecture	Short exam
3	2T +2E	Learn about collecting and analyzing readings from monitoring wells and piezometers, groundwater changing directions and calculating its quantities, and using laser beams to determine the movement of groundwater.	Collecting and analyzing readings from monitoring wells and piezometers, groundwater changing directions and calculating its quantities, and using laser beams to determine the movement of groundwater.	Lecture	Short exam
4	2T +2E	Learn about the use of electronic computers in the follow-up and measurement of nuclear information - the use of satellites	The use of electronic computers in the follow-up and measurement of nuclear information - the use of satellites	Lecture	Short exam
5	2T +2E	Identifying permeability, the permeability coefficient, measuring it in the laboratory using a constant and variable pressure method.	Permeability, the permeability coefficient, measuring it in the laboratory using a constant and variable pressure method.	Lecture	Short exam
6	2T +2E	Getting to know the theory of Drassi, Forchheimer, types of trocars, subsurface trocars, incisive trocars, low trocars	Theory of Drassi, Forchheimer, types of trocars, subsurface trocars, incisive trocars, low trocars	Lecture	Short exam
7	2T +2E	Learn about open trocars, covered trocars, field trocars, and columnar trocars	open trocars, covered trocars, field trocars, and columnar trocars	Lecture	Short exam
8	2T +2E	Identifying surface trocars and their calculations	Surface trocars and their calculations	Lecture	Short exam
9	2T +2E	To learn about calculating the spacing of subsurface trowels for homogeneous soils, calculate the spacing of trowels for natural soils	Calculating the spacing of subsurface trowels for homogeneous soils, calculate the spacing of trowels for natural soils	Lecture	Short exam
10	2T +2E	Identify the types of saline soils, their sources, and methods for measuring them	Types of saline soils, their sources, and methods for measuring them	Lecture	Short exam

11	2T +2E	Identifying the types of salts in the soil and their distribution, and the effect of salts on plants	Types of salts in the soil and their distribution, and the effect of salts on plants	Lecture	Short exam
12	2T +2E	Learn about land reclamation, introduction to the land washing process	Land reclamation, introduction to the land washing process	Lecture	Short exam
13	2T +2E	Identify washing requirements, water and salt balance in the root area	Washing requirements, water and salt balance in the root area	Lecture	Short exam
14	2T +2E	Identify the washing efficiency factor, water and salt balance in various saline lands	Washing efficiency factor, water and salt balance in various saline lands	Lecture	Short exam
15	2T +2E	Identify the washing processes in saline and sodic soils	Washing processes in saline and sodic soils	Lecture	Short exam
16	2T +2E	Identifying trocar installations, trocar materials (tubes, tube casings), calculations for selecting pipe capacity, and determining defect locations in covered trocar networks.	Trocar installations, trocar materials (tubes, tube casings), calculations for selecting pipe capacity, and determining defect locations in covered trocar networks.	Lecture	Short exam
17	2T +2E	Identify the geometry of puncture networks, network diagrams, and longitudinal and cross-sections of covered and open trocars	Geometry of puncture networks, network diagrams, and longitudinal and cross-sections of covered and open trocars	Lecture	Oral assessment
18	2T +2E	Learn about the operation of irrigation and drainage projects, stages of operation, maintenance of irrigation and irrigation, and maintenance sections	Operation of irrigation and drainage projects, stages of operation, maintenance of irrigation and irrigation, and maintenance sections	Lecture	Oral assessment
19	2T +2E	Identifying drainage networks, operating the drainage system, water drainage methods, and maintaining the irrigation and drainage project with allocations of operation and maintenance costs.	Drainage networks, operating the drainage system, water drainage methods, and maintaining the irrigation and drainage project with allocations of operation and maintenance costs.	Lecture	Short exam
20	2T +2E	Identifying the types of maintenance for irrigation and drainage projects, implementing maintenance work, maintenance machines and equipment,	Types of maintenance for irrigation and drainage projects, implementing maintenance work, maintenance machines and equipment, removing	Lecture	Short exam

		removing bushes and reeds from streams and drains.	bushes and reeds from streams and drains.		
21	2T +2E	Learn about the maintenance of the trocar system, general preventive measures, maintenance of open trocars, cleaning and maintenance of covered field trocars.	Maintenance of the trocar system, general preventive measures, maintenance of open trocars, cleaning and maintenance of covered field trocars.	Lecture	Short exam
22	2T +2E	Learn how to prepare forms and schedules for periodic maintenance with scientific examples and prepare them using a calculator	Prepare forms and schedules for periodic maintenance with scientific examples and prepare them using a calculator	Lecture	Short exam
23	2T +2E	Learn about the mechanization of punctures, adjustment and leveling machines, scrapers, and bulldozer pullers.	Learn about the mechanization of punctures, adjustment and leveling machines, scrapers, and bulldozer pullers.	Lecture	Short exam
24	2T +2E	Identify the machine and the laser control and operation system	Machine and the laser control and operation system	Lecture	report
25	2T +2E	Identify the drilling machines used to drill open trocars: A- Land excavators, B-Hydraulic excavators, C- Wireline drilling rigs	Drilling machines used to drill open trocars: A- Land excavators, B-Hydraulic excavators, C- Wireline drilling rigs	Lecture	Oral assessment
26	2T +2E	Recognition A- Trenchers, covered digging machines, their types and efficiency, B-Amphibious excavators and excavators mounted on supports, C- Drills	Recognition A- Trenchers, covered digging machines, their types and efficiency, B-Amphibious excavators and excavators mounted on supports, C- Drills	Lecture	Short exam
27	2T +2E	Identify pumps, their types used in drainage projects, their calculations and construction	Pumps, their types used in drainage projects, their calculations and construction	Lecture	Short exam
28	2T +2E	Identify pumps, their types used in drainage projects, their calculations and construction	Pumps, their types used in drainage projects, their calculations and construction	Lecture	report
29	2T +2E	Identifying the problems of puncture in Iraq	Problems of puncture in Iraq	Lecture	Short exam
30		Learn about land reclamation methods in northern, central and southern Iraq	Land reclamation methods in northern, central and southern Iraq		

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1- Irrigation and drainage engineering Dr. Charles Shukri, College of Engineering, University of Baghdad, 1986 2- Principles of land excavation, Riyad Wasfi, Arab House of Encyclopedias, 1982
Main references (sources)	1- Puncture Engineering by James Loshion, translated by Dr. Jamal Sharif, 1984 2- Irrigation and drainage, part 1, part 2 d. Nazia Asaad Younan, 1976 3- Operation and maintenance of projects by Abdul Rasul Abdul Reda, Abdul Salam Mahmoud, Abdullah Ali
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Soil mechanics
2. Course Code:
Department of Water Resources Techniques
3. Semester / Year:
Annual system
4. Description Preparation Date:
29-2-2025
5. Available Attendance Forms:
Attendance in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
90 hours / 6 units.
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Dr. Majeed Rasheed Sabaa Email: inm.mjd@atu.edu.iq
8. Course Objectives

Course Objective	**1- Introducing the student to the physical and engineering properties of soil.** **2- Through the physical and engineering properties of the soil, the foundation can be designed and the permissible bearing capacity can be calculated.** **3- Estimating the expected risk of constructing buildings on problematic soil.** **4- The impact of structures built on different types of soil.** **5- Qualifying the student and providing him with the necessary skill in classifying soil and conducting the necessary tests (field or laboratory) and relationship** **This is due to the facilities on which it is built.** **6- Preparing experiment reports.**

9. Teaching and Learning Strategies

Strategy	**1- Using the computer to present scientific material when explaining and clarifying.** **2-Using modern strategies in learning.** **3-Practical education applying theoretical topics in the laboratory.** **4- Distributing students into groups for the purpose of implementing experiments in the laboratory.** **5- Asking students to prepare reports on the experiments that are carried out in the laboratory and to complete the calculations and drawings related to each experiment.** **6- Self-education method, giving students a set of names of useful scientific sources in the theoretical and practical aspects.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
2 – 1	1T+2E	Enabling students to le about soil, a geolog introduction to the types of rocks, and how soi formed from rocks.	Soil, a geological introduct to the types of rocks, how is formed from rocks.	Theoretical explanation presentation.	Oral assessment – homework - exams.

4 – 3	1T+2E	Enabling the student to kn the components of soil, physical properties of (water content, porosity, v ratio, wet and dry dens saturated and flooded density, specific gravity).	Soil components, phys properties of soil, (w content, porosity, void ratio, wet and dry density, saturated and flooded dens specific gravity).	Theoretical explanation presentation.	Oral assessment – homework - exams.
6-5	1T+2E	Learn about granular soil analysis (sieve method and hydrometer method).	Granular soil analysis (sieve method and hydrometer method).	Theoretical explanation, presentation, and practical experiments.	Class assignment - exams - reports on t practical experimen carried out.
-8-7 9	1T+2E	Identify the properties of plasticity in soil (liquid limit, plasticity limit, shrinkage limit).	Plastic properties of soil (liquid limit, plasticity limit, shrinkage limit).	Theoretical explanation, presentation, and practical experiments.	Class assignment - exams - reports on t practical experimen carried out.
11 – 1	1T+2E	Enabling the student to know the classification of soil using the American Methodist Organization (AASHTO Classification) classification systems. Unified Soil Classification System (USCS), tripartite classification.	Soil classification using the American Roads Organization method, the Unified Soil Classification System, and the tripartite classification.	Theoretical explanation, presentation, and practical experiments.	Class assignment - exams - reports on t practical experimen carried out.
12	1T+2E	Enable the student to recognize soil permeability, coarse soil permeability, and fine soil permeability.	Soil permeability, coarse soil permeability, fine soil permeability.	Theoretical explanation, presentation, and practical experiments.	Class assignment - exams - reports on t practical experimen carried out.
13	1T+2E	Enabling the student to know the types of stresses in the soil, the total stress and the effective stress.	Types of stresses in soil, total stress and effective stress.	Theoretical explanation presentation.	
15-14	1T+2E	Identify lateral pressure of soil, explaining the types of filters.	Lateral pressure of soil, with an explanation of the types of filters.	Theoretical explanation presentation.	Oral assessment – homework - exams.
16	1T+2E	Enabling the student to know how to identify the improvement of soil properties, the mechanical method (compaction).	Improving soil properties, mechanical method (compaction).	Theoreticalexplan n, presentation, an practical experiments.	Class assignment - exams - reports on t practical experimen carried out.
17	1T+2E	Enabling the student to know the California bearing ratio and its importance in implementing roads .	California bearing ratio and its importance in implementing roads.	Theoretical explanation, presentation, and practical experiments.	Class assignment - exams - reports on t practical experimen carried out.

18	1T+2E	Learn about the methods of measuring field density- : (Cutting cylinder method, sand displacement method, and balloon or blower method).	Learn about the methods of measuring field density- : (Cutting cylinder method, sand displacement method, and balloon or blower method).	Theoretical explanation presentation.	Oral assessment – homework - exams.
21-20	1T+2E	Identifying shear resistance in soil: Sources of shear resistance in cohesive and non-cohesive soils, direct shear test, unconfined compression test, Triaxial shear test. .	Identifying shear resistance in soil: Sources of shear resistance in cohesive and non-cohesive soils, direct shear test, unconfined compression test, Triaxial shear test.	Theoretical explanation presentation.	Oral assessment – homework - exams.
23-22	1T+2E	Learn about on-site soil investigations Preliminary soil investigation methods, detailed soil investigation methods, excavation methods, number and locations of test pits, drawing a longitudinal section between test pits.	Learn about on-site soil investigations Preliminary soil investigation methods, detailed soil investigation methods, excavation methods, number and locations of test pits, drawing a longitudinal section between test pits.	Theoretical explanation, presentation, and practical experiments.	Class assignment - exams - reports on the practical experiments carried out.
24	1T+2E	Identify other methods f improving soil properti and stabilizing (stabilization with cemer stabilization with aspha stabilization with light).	Identify other methods f improving soil properti and stabilizing (stabilization with cemer stabilization with aspha stabilization with light).	Theoretical explanation, presentation, and practical experiments.	Class assignment - exams - reports on t practical experimen carried out.
27-26	1T+2E	Enable the student to recogn the consolidation of soil its relationship to subsider	Consolidation of soil and i relationship to subsidence.	Theoretical explanation presentation.	Oral assessment – homework – exams
28	1T+2E	Enabling the student know the types foundations and their relationship to the bearing capacity.	Types of Foundation sand the relationship to soil bearir capacity.	Theoretical explanation ar presentation.	Oral assessment – homework exams.
29	1T+2E	Enable the student recognize shallo foundations and deep foundations such as piles.	Shallow foundations and deep foundations, suc as piles.	Theoretical explanation, presentation, and practical experiments.	Class assignment - exams - reports on t practical experimen carried out.
30	1T+2E	Enabling the student to get a simple introductic to soil investigation	A simple introduction to soil investigation work, the types of models, the method of taking	Theoretical explanation, presentation, and	Class assignment - exams - reports on t practical experimen carried out.

		work, the types of mod the method of taking th and the number of test h that must be carried out on sit	them, and the number of pits that must be car out on site test.	practical experiments.	

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Methodical book: Soil mechanics and earthworks/Anyaz Muhammad Saeed, Salem Khalaf Al-Mahdawi. Field and laboratory tests in soil mechanics/ Makram Anwar Murad Al-Sheikh.
Main references (sources)	1 -Field and laboratory tests in soil mechanics and earthworks 1966 / prepared by Makram Anwar Al-Sheikh. 2 -Soil Engineering / Hamed Al-Saidi. 3 -Soil Mechanics / Dr. Excellent dear. 4- Engineering properties of soils and measurement ", Bowles. J. E; edition. 1982 5- Civil Engineering (Soil Mechanics), 2010, prepared by Ahmed Al Odeh
Recommended books and references (scientific journals, reports...)	Books, periodicals, university theses, information derived from the Internet and personal experience in the field of implementing soil tests in engineering projects.
Electronic References, Websites	Different websites of civil engineering specializing in soil testing, along with browsing electronic lecture presentations explaining the latest developments in the devices and equipment used in soil testing and how to benefit from them.

Course Description Form

1. Course Name:

Construction materials and quantitative survey

2. Course Code:

Department of Water Resources Techniques

3. Semester / Year:

Annual system

4. Description Preparation Date:

29-2-2025

5. Available Attendance Forms:

Attendance in the classroom

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

120 hours / 8 units.

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

Name: Asst. Prof. Dr. Khalid Mohammed Breesem Email: inm.khld@atu.edu.iq

8. Course Objectives

Course Objective	1- The course generally aims to introduce and teach the student the various construction materials that are involved in any work Construction works, whether urban or industrial. 2- The student becomes familiar with construction materials in general and consolidates his applied experience in how to use and examine construction materials used in construction work. 3- How to estimate the quantities used in irrigation and drainage projects, especially with regard to cladding, calculate the quantities needed for that, review the special specifications and conditions of general contracting and contracts and their types, and calculate the estimated duration of engineering works. 4- The student acquires the skill of calculating quantities and prices in order to obtain the cost of engineering works of all types, including buildings, roads, bridges, digging canals, dams, and so on.

9. Teaching and Learning Strategies

Strategy	1- Using the computer to present scientific material when explaining and clarifying. 2 -Following the discussion method to bring the material closer to the students and facilitate the understanding process. 3 -Conducting tests and evaluation after the end of the lecture. 4- Self-education method, giving students a set of names of useful scientific sources.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2T+2E	Definition of construction materials, a historical overview of them, their importance and areas of benefit from them.	Definition of construction materials, a historical overview of them, their importance and areas of benefit from them.	Theoretical explanat and presentation.	Oral assessment – homework - exams.
2	2T+2E	Physical and chemical properties and standard specifications for building materials.	Physical and chemical properties and standard specifications for building materials.	Theoretical explanat and presentation.	Oral assessment – homework - exams.

3	2T+2E	Stone, its uses in construction in general and in irrigation projects in particular, its physical and structural properties, its types and characteristics of the stone used in cladding works.	Stone, its uses in construction in general and in irrigation projects in particular, its physical and structural properties, its types and characteristics of the stone used in cladding works.	Theoretical explanation, presentation, and practical experiment	Class assignment - exams - reports on the practical experiments carried out.
4	2T+2E	Clay bricks, their properties, uses, and manufacturing methods.	Clay bricks, their properties, uses, and manufacturing methods.	Theoretical explanation, presentation, and practical experiment	Class assignment - exams - reports on the practical experiments carried out.
5	2T+2E	Sand bricks and concrete blocks, their properties, uses, methods of making and building with them.	Sand bricks and concrete blocks, their properties, uses, methods of making and building with them.	Theoretical explanation, presentation, and practical experiment	Class assignment - exams - reports on the practical experiments carried out.
6	2T+2E	Sand, its properties, sources, types and engineering specifications.	Sand, its properties, sources, types and engineering specifications.	Theoretical explanation, presentation, and practical experiment	Class assignment - exams - reports on the practical experiments carried out.
7	2T+2E	Gravel, its properties, sources, types and engineering specifications.	Gravel, its properties, sources, types and engineering specifications.	Theoretical explanat and presentation.	
8	2T+2E	Cement, its types, composition, properties, uses and standard tests.	Cement, its types, composition, properties, uses and standard tests.	Theoretical explanat and presentation.	Oral assessment – homework - exams.
10-9	2T+2E	Cement, its types, composition, properties, uses and standard tests.	Cement, its types, composition, properties, uses and standard tests.	Theoreticalexplanat presentation, and practical experiment	Class assignment - exams - reports on the practical experiments carried out.
12-11	2T+2E	Binders, their types, properties, and uses	Binders, their types, properties, and uses	Theoretical explanation, presentation, and practical experiment	Class assignment - exams - reports on the practical experiments carried out.
13	2T+2E	Steel used in construction, especially rebar, its properties, uses, special tests and how to implement it.	Steel used in construction, especially rebar, its properties, uses, special tests and how to implement it.	Theoretical explanat and presentation.	Oral assessment – homework - exams.
14	2T+2E	Environmentally friendly building materials, introduction, types and uses	Environmentally friendly building materials, introduction, types and uses	Theoretical explanat and presentation.	Oral assessment – homework - exams.
15	2T+2E	Nanotechnology and its applications in architecture, building	Nanotechnology and its applications in architecture, building	Theoretical explanation, presentation, and	Class assignment - exams - reports on the practical

		materials and green architecture	materials and green architecture	practical experiment	experiments carried out.
16	2T+2E	Estimation, its definition, analysis of preliminary investigations of the business and the number before estimation, benefit from the estimation process.	Estimation, its definition, analysis of preliminary investigations of the business and the number before estimation, benefits from the estimation proces	A theoretical explanation of files the form of PDF, Word, and Power Po	Oral assessment – homework – exams.
17	2T+2E	Explaining how to analyze prices, including estimatin materials and work	Explaining how to analyze prices, including estimating materials and work	A theoretical explanation of files the form of PDF, Word, and Power Po	Oral assessment – homework – exams.
-18 19	2T+2E	Explanation of the table o quantities, exercises on analyzing prices accordin to different units (size, area, lengths, numbers) fo building works.	Explanation of the table of quantities, exercises on analyzing prices according to different units (size, area lengths, numbers) for building works.	A theoretical explanation of files in the form of PDF, Word, and Power Point	Oral assessment – homework – exams.
20	2T+2E	Explaining how to calculate quantities for earthworks for dam works with applied examples.	Explaining how to calculat quantities for earthworks fo dam works, with applied examples.	A theoretical explanation of files in the form of PDF, Word, and Power Point	Oral assessment – homework – exams.
22-21	2T+2E	Explaining how to calcul quantities for strip foundations with applied examples.	Explaining how to calcula quantities for strip foundations with applied examples.	A theoretical explanation of files the form of PDF, Word, and Power Po	Oral assessment – homework – exams.
24-23	2T+2E	Explaining how to calcul quantities for concrete works with applied examples.	Explaining how to calcula quantities for concrete wo with applied examples.	A theoretical explanation of files the form of PDF, Word, and Power Po	Oral assessment – homework – exams.
25	2T+2E	Explaining how to calcul and estimate the amount materials used in construction work, such bricks and cement	Explaining how to calcula and estimate the amount o materials used in construction work, such a bricks and cement	A theoretical explanation of files the form of PDF, Word, and Power Po	Oral assessment – homework – exams.
27-26	2T+2E	Explaining the work of reinforcing steel and calculating the quantity o reinforcing steel in an irrigation facility.	Explaining the work of reinforcing steel and calculating the quantity of reinforcing steel in an irrigation facility.	A theoretical explanation of files the form of PDF, Word, and Power Po	Oral assessment – homework – exams.
28	2T+2E	Explaining the estimatio of wood block work and calculating its quantity in irrigation facility.	Explaining the estimation wood block work and calculating its quantity in irrigation facility.	A theoretical explanation of files the form of PDF, Word, and Power Po	Oral assessment – homework – exams.
30-29	2T+2E	Explaining how to price quantities and labor with applied examples	Explaining how to price quantities and labor with applied examples	A theoretical explanation of files the form of PDF, Word, and Power Po	Oral assessment – homework – exams.
11. Course Evaluation					

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1 -Building Construction and Building Materials / Youssef Al-Dawaf, fourth edition 1976 2 -Estimation and specifications / Medhat Fadil Fathallah 1977 3 -Concrete Technology / Dr. Muayyad Al Khalaf 4- Building materials and their standard tests / Dr. Muhammad A Barakat
Main references (sources)	1- Construction of Building Technology Buildings, 2011, prepa by Muhammad Ahmed Abdullah 2- Concrete, Ed. Mahmoud Emam, Part 1, 2008
Recommended books and references (scientific journals, reports...)	Books in the department library and in the institute's central libr
Electronic References, Websites	Estimating construction works / Kingdom of Saudi Arabia / General Organization For technical education and vocational training Building materials and raw materials used in construction book electronic

Course Description Form

1. Course Name	
Project	
2. Course Code:	
Department of Water Resources Techniques	
3. Semester / Year:	
Annual system	
4. Description Preparation Date:	
20/1/2025	
5. **Available Attendance Forms**:	
Attendance and practical	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours / 4 units	
7. Course administrator's name (mention all, if more than one name)	
Asst. Prof. Dr. Majeed Rasheed Sabaa inm.mjd@atu.edu.iq	Asst. Prof. Dr. Ameer Hashim Hussein inm.ame@atu.edu.iq
8. Course Objectives	
Course Objectives	**Teaching the student to search in scientific sources** **How to conduct research and projects with the help of specialized professors in the department and exploit the laboratories and equipment of the department and institute, as well as equipme in state departments, in a way that is appropriate to the nature of the project.**
9. Teaching and Learning Strategies	
Strategy	**1- Participation among students Contributing to collecting ideas and solutions • Methods reports and contexts Her winter** **2- Follow the discussion method to bring the material closer to the students and facilitate t understanding process.** **3- Conduct tests** **4- Self-education method, giving students a set of names of useful scientific sources.**

10. Course Structure

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

11.Course Evaluation	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	According to kind of lessen.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:

Computer Applications /2

2. Course Code:

Department of Water Resources Techniques

3. Semester / Year:

Annual / 2024-2025

4. Description Preparation Date:

1/2/2025

5. **Available Attendance Forms**:

Attendance in the classroom - electronic Google Meet and Classroom

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

30 hours / 2 units

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

Name: **Lect. Haider Talib Shumran**
Email: inm.hdr@atu.edu.iq

8. Course Objectives

Course Objectives	Learning about the program's interface, drawing and modification commands, and writing commands, then teaching the student the Windows 10 system and its applications such as the Word printing program, the Excel statistical program, and the Power Point presentation program..

9. Teaching and Learning Strategies

Strategy	1- Use the blackboard and computer to present the scientific material when explaining and clarifying. 2- Using modern strategies in learning. 3- Asking students to perform classroom and home exercises through solutions to assignments and specialized strengthening exercises at the end of each topic. 4- Self-learning method

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
2-1	1	Getting to know the Windows The concept of loading tasks, exiting the system and turning off the computer.	Getting to know the Windows The concept of loading tasks, exiting the system and turning off the computer.	Lecture + laboratory	Short exam
5-3	1	Learn about keyboard shortcuts	Learn about keyboard shortcuts	Lecture + laboratory	Short exam

7-6	1	Getting to know the Word document printing program	Getting to know the Word document printing program	Lecture + laboratory	Short exam
10-8	1	Getting to know the Word document printing program	Getting to know the Word document printing program	Lecture + laboratory	Short exam
14-11	1	Getting to know the Word document printing program	Getting to know the Word document printing program	Lecture + laboratory	Short exam
17-15	1	Learn about the statistical analysis program Excel	Learn about the statistical analysis program Excel	Lecture + laboratory	Short exam
20-18	1	Learn about the statistical analysis program Excel	Learn about the statistical analysis program Excel	Lecture + laboratory	Short exam
21	1	Learn about the statistical analysis program Excel	Learn about the statistical analysis program Excel	Lecture + laboratory	Short exam
22	1	Learn about the Power Point presentation program	Learn about the Power Point presentation program	Lecture + laboratory	Short exam
23	1	Learn about the Power Point presentation program	Learn about the Power Point presentation program	Lecture + laboratory	Short exam
24	1	Learn about the Power Point presentation program	Learn about the Power Point presentation program	Lecture + laboratory	Short exam
25	1	Learn about keyboard shortcuts	Learn about keyboard shortcuts	Lecture + laboratory	Short exam
26	1	Getting to know the Word document printing program	Getting to know the Word document printing program	Lecture + laboratory	Short exam
27	1	Getting to know the Word document printing program	Getting to know the Word document printing program	Lecture + laboratory	Short exam
28	1	Getting to know the Word document printing program	Getting to know the Word document printing program	Lecture + laboratory	Short exam
29	1	Learn about the statistical analysis program Excel	Learn about the statistical analysis program Excel	Lecture + laboratory	Short exam
30	1	Learn about the statistical analysis program Excel	Learn about the statistical analysis program Excel	Lecture + laboratory	Short exam

11.Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, class and homework assignments, daily, monthly and final written exams, reports...etc.

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Computer basics and office applications A.M.D. Ziad Muhammad Abboud and Prof. Dr. Ghassan Hamid Majeed Abdel Majeed
Main references (sources)	Computer basics and office applications A.M.D. Ziad Muhammad Abboud and Prof. Dr. Ghassan Hamid Majeed Abdel Majeed

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

Course Description Form

Course name :
English language
1. Course code :
For all branches of the department of water resources Techniques
2. Semester /
Annual system
3. Date setting up this description
15/1/2025
4. Forms for attendants available
Attendance in the classroom
5. Number of hours of communication (the total) / number of units (the total):
30 hours / 2 units
6. The administrator name is administrator (if more than a little name)
Asst. Prof. Dr. Ameer Abid Muslim Shamkhi ameer.shamki124@atu.edu.iq
7. Rating goals

Improving students' skills in English language, developing their reading, writing and listening abilities, and enable them to write scientific reports in English language.	**Objectives of the study**
8. Education and learning strategies	
1 **Use modern strategies in learning.** 2 **Students from students with rival and decorative exercises through duties and specialized reaction exercises at the end of each subject.** 3 **.Self-learning method**	**The strategy**

9. The structure of the course

The week	Hours	Name of the unit or the subject	Learning outputs required	Method of learning	Method of evaluation
1-2	**1**	Introductions, (am/ are/ is.)What's this in English?	Introductions, (am/ are/ is.) What's this in English?	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration.	Daily tests. Grades of grace and domestic duties.
3-4	**1**	Numbers 1 – 10. Plurals. Good morning!	Numbers 1 – 10. Plurals. Good morning! .	The Us plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
5-6	**1**	Countries, am/are/is. Her name's. She's from. Questions. Adjectives good/ awful. Numbers 11 – 30	Countries, am/are/is. Her name's. She's from. Questions. Adjectives good/	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.

			awful. Numbers 11 – 30		
7-8	**1**	Jobs, is/ isn't. Questions & negatives. Vocabulary revision. Social expression (1)	Jobs, is/ isn't. Questions & negatives. Vocabulary revision. Social expression (1(	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
9-10	**1**	Passive's, my/our/her. The family, has/have. Vocabulary revision. The alphabet	Passive's, my/our/her. The family, has/have. Vocabulary revision. The alphabet	. Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
11-12	**1**	Sports/food/drink. Present simple-1/you/they. Language and nationalities. How much is it?(.	Sports/food/drink. Present simple-1/you/they. Language and nationalities. How much is it)? .	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
13-14	**1**	The time. Present Simple-he/she. Prepositions in/at/on. Words that go together. Days of the week	The time. Present Simple-he/she. Prepositions in/at/on. Words that go together. Days of the	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
15-16	**1**	Questions. Pronouns me/him. Possessive adjectives my/his/this/that. Adjectives happy/miserable. Can I..?	Questions. Pronouns me/him. Possessive adjectives my/his/this/that. Adjectives happy/miserable. Can I?..	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
17-18	**1**	Rooms & furniture. There is/there are. Prepositions on/under/next to. Vocabulary revision. Directions	Rooms & furniture. There is/there are. Prepositions on/under/next to. Vocabulary revision. Directions	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
19-20	**1**	Saying years, was/were. Past Simple-irregular verbs have/do/go. Months & dates	Saying years, was/were. Past Simple-irregular verbs have/do/go. Months & dates	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
21-22	**1**	Past Simple-regular verbs. Questions & negatives. Making	Past Simple-regular verbs. Questions &	Use the plateau (the blackboard) and computer to view the scientific	Daily tests. Grades of grace

		conversation. Sport & leisure activities. Going sightseeing	negatives. Making conversation. Sport & leisure activities. Going sightseeing	material when explaining and illustration	and domestic duties.
23-24	**1**	Can/can't. Adverbs-very well/not at all. Requests & offers. Adjective + noun. Everyday problems	Can/can't. Adverbs-very well/not at all. Requests & offers. Adjective + noun. Everyday problems	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
25-26	**1**	Some/any. I'd like a../I'd like to. Offering things. Like & would like. Food	Some/any. I'd like a. /I'd like to. Offering things. Like & would like. Food	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
27-28	**1**	Colours & clothes. Present Continuous. Present Simple or Continuous?. Opposite verbs-leave-arrive. What's the matter?	Colours & clothes. Present Continuous. Present Simple or Continuous?. Opposite verbs-leave-arrive. What's the matter?	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.
29-30	**1**	Futureplans. Grammar revision. Vocabulary revision. Form filling. Social expressions (2(	Future plans. Grammar revision. Vocabulary revision. Form filling. Social expressions (2(	Use the plateau (the blackboard) and computer to view the scientific material when explaining and illustration	Daily tests. Grades of grace and domestic duties.

10.Rating rapporteur

Distribution of the degree from 100 on the task of students who are required by the student, daily and daily, daily, monthly and final editorials, and final

11.Learning and teaching sources

***Newheadway Plus, Beginner Workbook by John & Liz Soars Press. Oxford**	The required script books (methodology that found)
Newheadway Plus, Pre-Intermediate Student's book by John & Liz Soars Press. Oxford	Home References (Sources)
Newheadway Plus, Pre-Intermediate Student's book by John & Liz Soars Press. Oxford	The newly bonded books and references (scientific journals, reports ....)
What is the Internet from written and written lessons	.... <Electronic References, Sites

Course Description Form

1. Course name :	
Baath crimes	
2. Code The decision:	
For all branches of the department of water resources Techniques	
3. Semester:	
Annual system	
4. Date Preparation this the description	
19/1/2025	
5. Available forms of attendance:	
Attendance in the classroom - electronic Google Meet and Classroom	
6. Number of study hours (total)/number of units (total):	
30 hours / 2 units	
7. Name of the course administrator (if more than one name is mentioned)	
Asst. Lec. Yassmien AbdulAbbas Hamad	
8. Course objectives	
Objectives of the academic program 1- Enabling the student to understand the nature of human rights and freedoms 2- Establishing the foundations for the correct exercise of rights and freedoms. 3- Spreading the culture of human rights and strengthening the democratic experience in the region. 4- Consolidating the promotion of citizenship, spreading the culture of tolerance, spreading the spirit of tolerance and drying up the sources of terrorism. 5- Identify international standards and national legislation related to human rights and freedoms. 1. Required program outcomes and teaching, learning and evaluation methods a-Cognitive goals a1- Knowledge and understanding a2- Study all human rights conventions a3- Study relevant national legislation a4- Defending human rights by identifying means of protecting and promoting human rights. B - The program's skill objectives B1 - Enabling the student to know human rights, their development and their implications. B2 - That the student acquires skill in dealing with social phenomena in accordance with human rights principles.	**Objectives of the study**

Teaching and learning methods 1- Explanation and clarification 2- How to display the material 3- Lecture method Evaluation methods 1- Theoretical tests 2- Practical tests 3- Reports and studies	

9. Education and learning strategies

5- **Use modern strategies in learning.** 6- **Students from students with rival and decorative exercises through duties and specialized reaction exercises at the end of each subject.** 7- **.Self-learning method**	**The strategy**

10. The structure of the course

The week	Hours	Name of the unit or the subject	Learning outputs required	Method of learning	Road Evaluation
1	1	Human Rights	the introduction/ Concept Crimes and its section side notification the crime language And idiomatically	Throw Lec.	Daily tests. Grades of grace and domestic duties
2	1	Human Rights	Crimes System Resurrection according to documentation The court Law The courtCriminalIraqiSupremegeneral 2005	Throw Lec.	Daily tests. Grades of grace and domestic duties
3	1	Human Rights	Species Crimes International	Throw Lec.	Daily tests. Grades of grace and domestic duties
4-5-6	1	Human Rights	Decisions Outgoing from The court Criminal Supreme	Throw Lec.	Daily tests. Grades of grace and domestic duties
7	1	Human Rights	the chapter the second/Crimes Mental	Throw Lec.	Daily tests. Grades of grace and domestic duties
8	1	Human Rights	Antiquities Crimes Mental	Throw Lec.	Daily tests. Grades of grace and domestic duties
9	1	Human Rights	Crimes Social	Throw Lec.	Daily tests. Grades of grace and domestic duties

10	1	Human Rights	Militarization the society	Throw Lec.	Daily tests. Grades of grace and domestic duties
11	1	Human Rights	Violations Laws Iraqi	Throw Lec.	Daily tests. Grades of grace and domestic duties
12	1	Human Rights	Exam Oral	Throw Lec.	Daily tests. Grades of grace and domestic duties
13	1	Human Rights	Photo Violations rights Human crimes Authority	Throw Lec.	Daily tests. Grades of grace and domestic duties
14	1	Human Rights	Some decisions Violations Political and the military	Throw Lec.	Daily tests. Grades of grace and domestic duties
15-16-17	1	Human Rights	the chapter the third Crimes Environmental For the system-pollution The war like And radiological and an explosion Mine	Throw Lec.	Daily tests. Grades of grace and domestic duties
18	1	Human Rights	destruction the cities and the villages	Throw Lec.	Daily tests. Grades of grace and domestic duties
19-20-21	1	Human Rights	Drying Marshes	Throw Lec.	Daily tests. Grades of grace and domestic duties
22-23-24	1	Human Rights	Policy the earth Scorched	Throw Lec.	Daily tests. Grades of grace and domestic duties
25-26	1	Human Rights	Scraping Orchards and palm trees and the trees and crops	Throw Lec.	Daily tests. Grades of grace and domestic duties
27	1	Human Rights	the chapter the fourth	Throw Lec.	Daily tests. Grades of grace and domestic duties
28	1	Human Rights	Crimes Cemeteries Collective	Throw Lec.	Daily tests. Grades of grace and domestic duties
29	1	Human Rights	Events Cemeteries Extermination Collective committed from before the system	Throw Lec.	Daily tests. Grades of grace and domestic duties
30	1	Human Rights	Category Timeline for graves Extermination Collective in Iraq for the year1963-2003 AD	Throw Lec.	Daily tests. Grades of grace and domestic duties
11. Rating rapporteur					

Distribution of the degree from 100 on the task of students who are required by the student, daily and daily, daily, monthly and final editorials, and final

12. Learning and teaching sources

Human rights - its development and implications - Dr. Riad Aziz Hadi	1Booksdecidedrequired
Charter of the United Nations Ihsan Hindi - Laws of Military Occupation	2the reviewer Main(Sources)
Archives of the Institution for Political Prisoners - the official website of the United Nations	A Books and references that recommend With it(Magazines Scientific, reports,....)
Crime sites	B-the reviewer Electronic, websites The Internet....