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

Academic Program and Course Description Guide

2025 - 2026

Introduction:

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

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

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

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

Concepts and terminology:

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

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

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

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

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

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

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

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

Academic Program Description Form

University Name: Al – Furat Al – Awsat Technical
Faculty/Institute: Babylon Technical Institute
Scientific Department: Mechanical Power Technologies Department
Academic or Professional Program Name: Technical Diploma
Final Certificate Name: Diploma in Mechanical Power Technologies
Academic System: Annual
Description Preparation Date: 19/ 11 / 2025
File Completion Date: 1/ 12 / 2025

Signature:
Head of Department Name:
Lec. Dr. Bashar Diaa Hussein
Date: 18/1/2026

Signature:
Scientific Associate Name:
Asst. Prof. Dr. Oras khudhayer Obayes
Date: 18/1/2026

The file is checked by: Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Asst. Prof. Khansaa Azeez Obayes
Date: 18/1/2026
Signature:

Approval of the Dean

Asst. Prof. Dr.
Ali Najah Kadhim
Dean of Babylon Technical Institute

Academic program description

1. Academic Department	Power Mechanics Technology Department
2. Name of Academic or Professional Program	Automotive Branch
3. Date of Preparation of this Descriptio	1 / 12 / 2025
4. Name of Final Certificate	Technical Diploma
5. Academic System	Annual
6. Accredited Accreditation Program	ABET
7. Other External Influences	Automotive Manufacturing Companies - Government Departments That Contain Machinery Workshops - Private Sector

1. Program Vision

The Department of Power Mechanics is one of the main technological departments. The department is moving towards expanding the base of technical education and its modern applications to be a leader in providing certified technical services and a spirit of competition and cooperation with the community.

2. Program Mission

The Department of Power Mechanics adopts a general message based in its general form on the framework of technical education in Iraq, a message that it seeks to achieve every year to highlight the department's distinctive face. The general objectives focus on graduating national technical cadres at the level of technical development to keep pace with rapid global technical developments. The special message includes the following: -

- Using computer and Internet technologies in education and training
- Activating the relationship with the private sector in the fields of training
- Following up on the development of curricula and training plans and then updating laboratories and workshops
- Interacting with the market and the needs of society in rehabilitation and training

3. Program Objectives

Branch Objective: - The department aims to prepare specialized cadres to work in government company workshops and in the private sector capable of:

1. The ability to identify mechanical and electrical faults in cars using modern devices.
2. Carry out periodic maintenance work for gasoline and diesel cars.
3. The ability to manage and operate service and maintenance stations.

4. Program Accreditation

No

5. Other external influences

No, there is no donor

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	**8**	**16**	**%15.1**	All courses are core and there are no electives
College Requirements	**6**	**32**	**%30.2**	All courses are core and there are no electives
Department Requirements	**10**	**58**	**%54.7**	All courses are core and there are no electives
Summer Training	\	\	\	All courses are core and there are no electives
Other	\	\	\	

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
1	MPT-101-24-YM	Car maintenance (1)	2	3
	MPT-102-24-YM	Car Electricity (1)	1	2
	MPT-103-24-YM	Fluids and Thermodynamics	2	1
	MPT-104-24-YM	Engineering mechanics	2	1
	MPT-105-24-YM	Mechanics lab	-	4
	MPT-106-24-YM	Engineering Drawing	-	3
	MPT-107-24-YM	Mathematics	2	-
	ATU12-24-YM	Computers and artificial intelligence	1	-
	ATU13-24-YM	Rights and democracy	1	-
	ATU10-24-YM	English language	1	-
	ATU11-24-YM	Arabic language	1	-
2	MPT-201-24-YM	Car mechanic	2	-
	MPT-202-24-YM	Car body	1	2
	MPT-203-24-YM	Car maintenance (2)	2	6
	MPT-204-24-YM	Car Electricity (2)	1	2
	MPT-205-24-YM	Modern Car technology	1	2
	MPT-206-24-YM	Internal combustion engines	2	2
	MPT-207-24-YM	Industrial drawing	-	3
	MPT-208-24-YM	Project	2	-
	MPT-209-24-YM	Industrial management	2	-
	ATU22-24-YM	Computers and artificial intelligence	1	-
	ATU24-24-YM	Baath crimes	1	-
	ATU20-24-YM	English language	1	-
	ATU21-24-YM	Arabic language	1	-

8. Expected learning outcomes of the program

Knowledge

1. Applies modern knowledge, skills, and tools with precision in specific engineering activities. 2. Utilizes knowledge in mathematics, engineering, technology, and other sciences to solve engineering problems that require a limited scope of application. 3. Conducts the necessary tests and measurements, performs experiments, analyzes, and interprets the results. 4. Demonstrates a solid understanding of the fundamentals of automotive mechanics and powertrain systems.	• Applies modern engineering knowledge, skills, and tools accurately in specialized engineering activities. • Utilizes mathematics, engineering, technology, and related sciences to solve engineering problems of limited scope.

Skills

1. Conducts the required tests and measurements, performs experiments, and analyzes and interprets the results. 2. Identifies, analyzes, and solves limited technical problems. 3. Identifies and utilizes appropriate technical literature in both technical and non-technical environments. 4. Diagnoses mechanical and electrical faults using modern instruments and equipment.	• Conducts the required tests, measurements, and experiments, and accurately analyzes and interprets the results. • Identifies and analyzes limited technical problems and proposes appropriate, systematic solutions.

Ethics	
1. Works with the spirit of a unified technical team. 2. Understands and adheres to professional and ethical responsibilities. 3. Commits to quality concepts and strives for continuous improvement. 4. Adheres to professional ethics and maintains integrity in technical work.	• Understands and adheres to professional and ethical responsibilities within the engineering environment. • Commits to quality principles and continuously strives for improvement and technical excellence.

9. Teaching and Learning Strategies

1. Written lectures.
2. Practical training.
3. Videos using the data viewer.
4.Scientific visits

10. Evaluation methods

1. Continuous testing.
2. Pre and post questions.
3. Semester and final exams.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/ Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Industrial Management	Production and Operations				
Assistant Professor	Mechanical engineering	Engineering education technology			1	
Assistant Professor	Electrical Engineering	Electronics			1	
Lecturer	Materials engineering	Ceramic engineering and building materials			1	
Lecturer	Mechanical engineering	Specialization in power mechanics			1	
Lecturer	Mechanical engineering	Specialization in applied mechanics			1	
Lecturer	Electrical power engineering	Electrical power engineering			2	
Lecturer	Materials Physics	Specialization			1	
Assistant Lecturer	Mechanical engineering	Specialization in power mechanics			2	
Assistant Lecturer	Math Science	Dynamic topology			1	
Assistant Lecturer	Computer Science	Cybersecurity major			1	
Assistant Lecturer	Mechanical engineering	Specialization in applied mechanics			5	
Assistant Lecturer	Materials engineering	Ceramic engineering and building materials			1	
Assistant Lecturer	Power Mechanics Engineering Technology	Power Mechanics Engineering Technology			1	
Assistant Lecturer	Materials engineering	Engineering Materials Selection and Identification			1	

Professional Development

Mentoring new faculty members

The head of the department received the new appointees, welcomed them, and directed them to their workplaces in the department, each according to their specialization and academic achievement, so that they could perform the work assigned to them in the best way, for the purpose of continuing the scientific and educational process and directing it in the correct manner in a way that serves the interest of the department and the institution in general.

Professional development of faculty members

1- Teamwork within the group effectively and actively
2- Manage time effectively and set priorities with the ability to work on regular schedules
3- Leadership and the ability to direct and motivate others
4- Independence at work.

1. Acceptance Criterion

1- Iraqi nationality
2- Possession of an Iraqi preparatory school certificate supported by certification from the General Directorate of Education in the governorate or an equivalent certificate.
3- The student must be born in 1994 onwards.
4- Successful in the medical examination according to the conditions for each study, and the blind student (who meets the conditions for applying for appropriate humanitarian studies) will be submitted through central admission.
5- Devoted to study. It is not permissible to combine work and study (at the same time) in colleges and morning institutes. This includes employees of all government institutions. In order for them to continue studying, they must obtain a study leave from their departments starting in accordance with the instructions in force. It is not permissible to combine two studies either, and in the event of a dispute being proven. He writes to the Ministry to cancel his acceptance (the student employee can postpone his studies according to the instructions in order to fulfill the condition of completing two years of service - satisfactory to be entitled to obtain study leave and in accordance with the instructions for granting study leave).
6- Among my graduates:
A- The current academic year.
B- The previous academic year of those who are not centrally accepted into any college or institute, and they are accepted according to the minimum limits for the year of their graduation, and if it is proven that
The student's acceptance into any college or institute will be returned to his original acceptance and it will be considered a year of failure for him.
7- Non-Iraqi students who hold an Iraqi preparatory certificate and are accepted centrally will be notified in writing to review the Central Admissions Department / Expatriates Division to state their exemption or demands for tuition fees in foreign currency according to the controls in Chapter Seven**.**

2. The most important sources of information about the program

1. Methodical books.
2. Lectures.
3. Internet

3. Program Development Plan

1.Holding scientific seminars
2. Holding internal courses
3. Participation in external courses.

Program Skills Outline																
				Required program Learning outcomes												
Year/ Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics				
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	
1	MPT-101-24-YM	Car maintenance (1)	Basic	√		√		√				√	√			
	MPT-102-24-YM	Car Electricity (1)	Basic	√			√	√		√		√	√			
	MPT-103-24-YM	Fluids and Thermodynamics	Basic	√		√			√			√		√		
	MPT-104-24-YM	Engineering mechanics	Assistant				√			√				√		
	MPT-105-24-YM	Mechanics lab	Assistant				√			√				√	√	
	MPT-106-24-YM	Engineering Drawing	Basic			√			√		√	√	√			
	MPT-107-24-YM	Mathematics	Assistant	√					√	√		√	√	√		
	ATU12-24-YM	Computers and artificial intelligence	Assistant		√			√				√	√			
	ATU13-24-YM	Rights and democracy	Assistant		√		√				√		√			
	ATU10-24-YM	English language	Assistant				√		√	√	√			√	√	
	ATU11-24-YM	Arabic language	Assistant				√			√			√	√		
2	MPT-201-24-YM	Car mechanic	Basic	√	√			√			√	√	√			

	MPT-202-24-YM	Car body	Basic		√					√					
	MPT-203-24-YM	Car maintenance (2)	Basic	√			√			√			√		√
	MPT-204-24-YM	Car Electricity (2)	Basic	√			√			√		√			
	MPT-205-24-YM	Modern Car technology	Basic	√			√			√			√	√	
	MPT-206-24-YM	Internal combustion engines	Basic				√	√			√	√			
	MPT-207-24-YM	Industrial drawing	Basic		√					√			√		
	MPT-208-24-YM	Project	Assistant	√	√			√		√			√		
	MPT-209-24-YM	Industrial management	Assistant			√	√			√			√		
	ATU22-24-YM	Computers and artificial intelligence	Assistant				√			√	√	√			
	ATU24-24-YM	Baath crimes	Assistant				√				√	√			√
	ATU20-24-YM	English language	Assistant	√			√		√				√	√	
	ATU21-24-YM	Arabic language	Assistant	√			√		√				√	√	

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

Stage 1: -

Course Description Form

1. Course Name	**Car Electricity (1)**
2. Course Code	MPT-102-24-YM
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Sarah Salim Hasan	Email: sara.hassan.iba101@atu.edu.iq
8. Course Objectives	
Course Objectives	**Teaching the student electrical terminology, types of connections, and parts of the electric car**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical=2 Practical=3	Identifies car components accurately	A brief history of the car, an explanation of the tools, tools and devices used in car maintenance, the basic car components (chassis, engine, clutch, powertrain, drive shaft, rear axle, front axle, suspension, steering)	Lectures and practical training	Oral exams And practical training
2	Theoretical=2 Practical=3	Explains four-stroke engine operation	Types of gasoline engines (four-stroke, two-stroke). Explanation of four-stroke engines	Lectures and practical training	Oral exams And practical training
3	Theoretical=2 Practical=3	Applies Kirchhoff's laws correctly	Kirchhoff's first and second laws, mathematical problems, a set of definitions	Lectures and practical training	Oral exams And practical training
4	Theoretical=2 Practical=3	Analyzes resistor circuit types	Types of electrical circuits (to connect resistors), series, parallel, mixed, mathematical problems	Lectures and practical training	Oral exams And practical training
5	Theoretical=2 Practical=3	Identifies battery types and uses	The energy sources in the car include (the battery, types of batteries, battery components, charging methods for all types)	Lectures and practical training	Oral exams And practical training
6	Theoretical=2 Practical=3	Performs battery testing procedures	Solutions used for the three types of batteries, methods of chemical reactions, devices used to test solutions, maintenance methods, measuring solution density.	Lectures and practical training	Oral exams And practical training
7	Theoretical=2 Practical=3	Distinguishes battery connection methods	Connecting energy sources (batteries) to the electrical circuit in three types, connecting sources in series, parallel, and mixed, connection characteristics for each case.	Lectures and practical training	Oral exams And practical training

8	Theoretical=2 Practical=3	Solves electrical source problems	Mathematical problems to calculate the final value of the energy source in an electrical circuit	Lectures and practical training	Oral exams And practical training
9	Theoretical=2 Practical=3	Explains alternating current concept	A general idea about alternating current, definitions of alternating current, and reasoning about which part of the car works	Lectures and practical training	Oral exams And practical training
10-12	Theoretical=2 Practical=3	Identifies AC automotive applications	Magnetism, general properties of magnetism, definitions of types of magnets, lines of magnetic force, Magnetic flux density B, magnetic field intensity Ĥ, magnetic flux ø, magnetic flux conductivity θ. The relationship between electrical energy and magnetic energy, how to convert between the two energies, Oersted phenomenon, Faraday's law, Lenz's law, Electromagnetic induction, types of induction, self-induction, mutual induction, kinetic induction	Lectures and practical training	Oral exams And practical training
13-14	Theoretical=2 Practical=3	Explains magnetic properties clearly	The charging circuit in the car, a general idea about the direct current (DC) generator, its parts, components, principle of operation, general diagram of the generator's electrical circuit.	Lectures and practical training	Oral exams And practical training
15-16	Theoretical=2 Practical=3	Relates electrical and magnetic energy	Charging circuit for an alternating current (AC) generator, its parts, components, working principle, general diagram of the generator's electrical circuit	Lectures and practical training	Oral exams And practical training
17-18	Theoretical=2 Practical=3	Distinguishes induction types	The starter motor (the predecessor), its parts, components, principle of operation, general diagram of the electrical circuit of the motor	Lectures and practical training	Oral exams And practical training
19-20	Theoretical=2 Practical=3	Explains DC generator operation	Ignition system, first generation (regular), parts, working principle, general diagram of the electrical circuit of the system.	Lectures and practical training	Oral exams And practical training
21	Theoretical=2 Practical=3	Explains AC generator operation	Mug candles, parts, working principle, maintenance and inspection, general diagram of the electric circuit for a mug candle	Lectures and practical training	Oral exams And practical training
22-23	Theoretical=2 Practical=3	Explains starter motor operation	Main, side and interior lighting system, components, working principle, general scheme of the systems	Lectures and practical training	Oral exams And practical training
24-25	Theoretical=2 Practical=3	Describes ignition system function	Auxiliary devices in the car, (fuel gauge, oil pressure gauge, charging current gauge, temperature gauge)	Lectures and practical training	Oral exams And practical training
26	Theoretical=2 Practical=3	Maintains and inspects spark plugs	The electrical circuit to control car doors and windows (opening and closing)	Lectures and practical training	Oral exams And practical training
27	Theoretical=2 Practical=3	Explains vehicle lighting systems	Car air conditioning and heating devices (electrical system)	Lectures and practical training	Oral exams And practical training
28	Theoretical=2 Practical=3	Identifies automotive measuring instruments	Windshield wiper device (electrical circuit), fuel pump device (electrical circuit)	Lectures and practical training	Oral exams And practical training
29-30	Theoretical=2 Practical=3	Explains control electrical circuits	The electrical circuit for audio and video audio, the early warning system against theft, the electrical circuit	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Automotive Electrical Systematic Book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name	**Car maintenance (1)**
2. Course Code	MPT-101-24-YM
3. Semester / Year	Annual Course/ First Stage
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Laith Salim Kamal	Email:Layth.kamal@atu.edu.iq
8. Course Objectives	
Course Objectives	**Teaching the student about car breakdowns and how to maintain them**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	theoretical=2 Practical=3	Identifies car components correctly	A brief history of the car, an explanation of the tools, tools and devices used in car maintenance, the basic car components (chassis, engine, clutch, powertrain, drive shaft, rear axle, front axle, suspension, steering)	Lectures and practical training	Oral exams And practical training
2	theoretical=2 Practical=3	Explains four-stroke engine operation	Types of gasoline engines (four-stroke, two-stroke). Explanation of four-stroke engines	Lectures and practical training	Oral exams And practical training
3	theoretical=2 Practical=3	Applies Kirchhoff's laws accurately	Kirchhoff's first and second laws, mathematical problems, a set of definitions	Lectures and practical training	Oral exams And practical training
4	theoretical=2 Practical=3	Analyzes resistor circuit connections	Types of electrical circuits (to connect resistors), series, parallel, mixed, mathematical problem.	Lectures and practical training	Oral exams And practical training

5	theoretical=2 Practical=3	Identifies battery types components	The energy sources in the car include (the battery, types of batteries, battery components, charging methods for all types)	Lectures and practical training	Oral exams And practical training
6	theoretical=2 Practical=3	Performs battery maintenance procedures	Solutions used for the three types of batteries, methods of chemical reactions, devices used to test solutions, maintenance methods, measuring solution density.	Lectures and practical training	Oral exams And practical training
7	theoretical=2 Practical=3	Distinguishes battery connection types	Connecting energy sources (batteries) to the electrical circuit in three types, connecting sources in series, parallel, and mixed, connection characteristics for each case.	Lectures and practical training	Oral exams And practical training
8	theoretical=2 Practical=3	Solves electrical source calculations	Mathematical problems to calculate the final value of the energy source in an electrical circuit	Lectures and practical training	Oral exams And practical training
9	theoretical=2 Practical=3	Explains automotive AC applications	A general idea about alternating current, definitions of alternating current, and reasoning about which part of the car works	Lectures and practical training	Oral exams And practical training
10-12	theoretical=2 Practical=3	Explains magnetic properties clearly	Magnetism, general properties of magnetism, definitions of types of magnets, lines of magnetic force, Magnetic flux density B, magnetic field intensity Ĥ, magnetic flux ø, magnetic flux conductivity θ. The relationship between electrical energy and magnetic energy, how to convert between the two energies, Oersted phenomenon, Faraday's law, Lenz's law, Electromagnetic induction, types of induction, self-induction, mutual induction, kinetic induction	Lectures and practical training	Oral exams And practical training
13-14	theoretical=2 Practical=3	Relates electrical magnetic principles	The charging circuit in the car, a general idea about the direct current (DC) generator, its parts, components, principle of operation, general diagram of the generator's electrical circuit.	Lectures and practical training	Oral exams And practical training
15-16	theoretical=2 Practical=3	Explains DC generator operation	Charging circuit for an alternating current (AC) generator, its parts, components, working principle, general diagram of the generator's electrical circuit	Lectures and practical training	Oral exams And practical training
17-18	theoretical=2 Practical=3	Explains AC generator operation	The starter motor (the predecessor), its parts, components, principle of operation, general diagram of the electrical circuit of the motor	Lectures and practical training	Oral exams And practical training
19-20	theoretical=2 Practical=3	Describes starter motor operation	Ignition system, first generation (regular), parts, working principle, general diagram of the electrical circuit of the system.	Lectures and practical training	Oral exams And practical training
21	theoretical=2 Practical=3	Explains ignition system function	Mug candles, parts, working principle, maintenance and inspection, general diagram of the electric circuit for a mug candle	Lectures and practical training	Oral exams And practical training
22-23	theoretical=2 Practical=3	Inspects spark plug performance	Main, side and interior lighting system, components, working principle, general scheme of the Systems	Lectures and practical training	Oral exams And practical training

24-25	theoretical=2 Practical=3	Explains vehicle lighting operation	Auxiliary devices in the car, (fuel gauge, oil pressure gauge, charging current gauge, temperature gauge)	Lectures and practical training	Oral exams And practical training
26	theoretical=2 Practical=3	Interprets lighting system diagrams	The electrical circuit to control car doors and windows (opening and closing)	Lectures and practical training	Oral exams And practical training
27	theoretical=2 Practical=3	Identifies automotive measuring devices	Car air conditioning and heating devices (electrical system)	Lectures and practical training	Oral exams And practical training
28	theoretical=2 Practical=3	Explains door window control	Windshield wiper device (electrical circuit), fuel pump device (electrical circuit)	Lectures and practical training	Oral exams And practical training
29-30	theoretical=2 Practical=3	Explains automotive climate systems	The electrical circuit for audio and video audio, the early warning system against theft, the electrical circuit	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Modern car maintenance book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name	**Fluid**
2. Course Code	MPT-103-24-YM
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Zahraa Kazem Rodhan	Email: zahraakaz78@atu.edu.iq
8. Course Objectives	
Course Objectives	Teaching the student the basic concepts of fluid mechanics and thermodynamics
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	theoretical=2 Practical=1	Distinguishes fluid physical properties	Types of unit systems, density, specific volume, pressure, temperature (Celsius and absolute), Properties of fluids: difference between fluids and solid metals, difference between liquids and gases	Lectures and practical training	Oral exams And practical training
2	theoretical=2 Practical=1	Defines fluid density parameters	Definition of density, relative density, specific weight, specific volume, ideal fluid, real fluid, examples.	Lectures and practical training	Oral exams And practical training
3	theoretical=2 Practical=1	Analyzes fluid viscous behavior	Shear stress, dynamics of fluid flow, Newton's Law of viscosity, dynamic viscosity, kinematic viscosity, surface tension. - Capillarity, liquid vapor pressure,	Lectures and practical training	Oral exams And practical training
4-6	theoretical=2 Practical=1	Applies fluid press principles	Pressure, liquid pressure head, Pascal aw of pressure, variation of liquid pressure heat with respect to gravity, pressure at a datum for stationary liquid. Absolute pressure, gage pressure, barometer, pressure gage equipment. Bourdon	Lectures and practical training	Oral exams And practical training

			gage, Piezometer, U tube manometer, comparative gage.		
7	theoretical=2 Practical=1	Classifies fluid flow types	Fluid motion, fluid flow, pressure of fluid flow, laminar flow, turbulent flow, velocity profile of flow, Reynold's number.	Lectures and practical training	Oral exams And practical training
8	theoretical=2 Practical=1	Applies continuity equation correctly	Flow rate, volumetric flow rate, mass flow rate, - Continuity equation, problems on continuity equation for uncompressible fluids.	Lectures and practical training	Oral exams And practical training
9-11	theoretical=2 Practical=1	Applies Bernoulli energy equation	Bernoulli equation and application.	Lectures and practical training	Oral exams And practical training
12-14	theoretical=2 Practical=1	Applies first law principles	First law of thermodynamics, kinds of energy, (dynamic energy, potential mechanical energy, internal energy, heat, work), work of a system represented on pressure – volume diagram, energy of flow, enthalpy, energy – conservation equation of first law of thermodynamics. Classifications of systems, application of first law of thermodynamics on closed systems, energy equation for steady flow, some application on first law for steady state open systems, application on first law for steady state open systems, application on (nozzle, diffuser, though, condenser, boiler, turbine, compressor, heat exchanger, open plane), representation of work for open systems for steady flow on pressure volume diagram, examples.	Lectures and practical training	Oral exams And practical training
15	theoretical=2 Practical=1	Explains entropy and cycles	Second law of thermodynamics: Reversible process, entropy, temperature-entropy diagram, coordinates place on T-S diagram, cycles, work of cycle, thermal efficiency of cycle, examples. State of second law for heat engine, and for heat pump.	Lectures and practical training	Oral exams And practical training
16-19	theoretical=2 Practical=1	Analyzes ideal g behavior	Ideal Gas: Specific heat at constant volume, specific heat at constant pressure, equation of ideal gas state, gas constant, universal gas constant. Constant volume process, constant pressure process, constant temperature process, studying of process on P – V diagram and T – S diagram, examples.	Lectures and practical training	Oral exams And practical training
20-24	theoretical=2 Practical=1	Evaluates standard cycles	Adiabatic process, isentropic process, studying of process on P -V diagram and T-S diagram, examples. standard air cycles: Carnot cycle, reversed carnot cycle, studying of cycle on P – V diagram and T – S diagram, examples. Auto cycle, diesel cycle, studying of cycle on P – V diagram and T – S diagram, calculating heat changed, work and efficiency of each cycle. Combined cycle, studying of cycle on P – V diagram and T – S diagram, finding heat changed, work, efficiency, parameters affecting on standard air cycle efficiency, comparison between, Auto, diesel, dual cycles), examples.	Lectures and practical training	Oral exams And practical training
25-28	theoretical=2 Practical=1	Analyzes steady heat conduction	Heat transfer by conduction: Steady state heat conduction, conduction through homogenous plane	Lectures and	Oral exams And practical

			wall, conduction through composite wall, thermal resistance, heat conduction through homogenous cylindrical wall, heat conduction through multi layers cylindrical wall, examples.	practical training	training
29-30	theoretical=2 Practical=1	Evaluates heat exchanger performance	Heat exchangers and their types, logarithmic mean temperature difference, calculations of heat exchangers, effectiveness of heat exchangers, examples.	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed

1- 10 marks for the first theoretical semester and 10 marks for practical.

2- 10 marks for the second semester, theoretical + 10 marks for practical

3 - 10 marks for student activities

4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Modern car maintenance book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Engineering Drawing**
2. Course Code:	MPT-106-24-YM
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Alaa Shaker Aobida	Email: alaashaker2025@gmail.com
8. Course Objectives	
Course Objectives	**Teaching the student to perform engineering drawing using the AutoCAD program**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Practical=3	**Understand engineering drawing fundamentals**	The importance of engineering drawing - The importance of using a computer to implement engineering drawing - Drawing board sizes (standard) - An overview of the AutoCAD program	Lectures and practical training	Oral exams And practical training
2	Practical=3	**Identify engineering drawing lines**	Types of lines in engineering drawing - using drop-downs for lines and texts	Lectures and practical training	Oral exams And practical training
3-4	Practical=3	**Draw basic geometric shapes**	Basic shapes	Lectures and practical training	Oral exams And practical training
5-6	Practical=3	**Use drawing adjustment tools**	Drawing adjustments - Drawing aids	Lectures and practical training	Oral exams And practical training

7-8-9	Practical=3	**Apply basic engineering operations**	Engineering operations - dimensioning - applications to previous concepts	Lectures and practical training	Oral exams And practical training
10-11-12-13	Practical=3	**Produce perspective engineering drawings**	Perspective Drawing - Drawing a perspective containing a circle, rectangle, triangle and polygon	Lectures and practical training	Oral exams And practical training
14-15	Practical=3	**Understand projection theory principles**	Projection theory - drawing simple projections	Lectures and practical training	Oral exams And practical training
16-17	Practical=3	**Apply correct engineering dimensions**	Placing dimensions on perspective and projections	Lectures and practical training	Oral exams And practical training
18-19-20	Practical=3	**Derive missing projection views**	Conclusion of the third site from two sites	Lectures and practical training	Oral exams And practical training
21-22-23	Practical=3	**Analyze engineering cutting sections**	Cutting theory - shapes of cutting lines according to the material - drawing cut sections	Lectures and practical training	Oral exams And practical training
24-25-26	Practical=3	**Draw sectional projection views**	Drawing projections cut from a specific projection	Lectures and practical training	Oral exams And practical training
28-27	Practical=3	**Execute partial sectional drawings**	Drawing partially cut projections	Lectures and practical training	Oral exams And practical training
30-29	Practical=3	**Apply engineering drawing skills**	Applications and projects	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 15 marks for practical. for the first semester
2- 15 marks for practical. for the second semester
3 - 10 marks for student activities
4 - 60 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Engineering drawing book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Stage 2: -

Course Description Form

1. Course Name	**Car mechanic**
2. Course Code	**MPT-201-24-YM**
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms	Attendance In-person
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)	
Name: Ali Jassim Attia	Email: ali.atiyah.iba115@atu.edu.iq
8. Course Objectives	
Course Objectives	**Teaching the student the basic concepts of automobile mechanics and how to solve problems**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	theoretical=2	**Analyze vehicle motion resistance**	Automotive performance, the total resistance affecting car motion	Lectures and practical training	Oral exams And practical training
2	theoretical=2	**Evaluate traction force requirements**	Traction effort	Lectures and practical training	Oral exams And practical training
3-4	theoretical=2	**Assess surplus tractive effort**	Surplus effort & examples	Lectures and practical training	Oral exams And practical training
5-6	theoretical=2	**Select appropriate gear ratios**	Gears, types gearing system, motion between two gears, selecting the best gear ratio, rear axle ratio, overall gear ratio examples	Lectures and practical training	Oral exams And practical training
7	theoretical=2	**Design sliding bearing systems**	Bearing types, calculations and design of sliding bearing	Lectures and practical training	Oral exams And practical training
8	theoretical=2	**Analyze and design shafts**	Shafts, types, calculation and design of the shafts	Lectures and practical training	Oral exams And practical training
9-10-11	theoretical=2	**Design clutch power transmission**	Clutch, types, design, power transmitted, calculation	Lectures and practical training	Oral exams And practical training

12-13-14-15	theoretical=2	**Calculate belt power transmission**	Belts. types, system types, calculation of power transmitted from flat and v. type.	Lectures and practical training	Oral exams And practical training
16-17-18-19-20	theoretical=2	**Analyze automotive braking systems**	Brakes, type's systems function, calculation of stopping distance, declaration, load transfer during brake, braking force on front and rear wheel, wheel piston diameter, all these calculations based on disc and shoes brake type.	Lectures and practical training	Oral exams And practical training
21-22	theoretical=2	**Evaluate suspension system performance**	Suspension system types advantages and disadvantages Calculation of leaf and coil spring	Lectures and practical training	Oral exams And practical training
23-24	theoretical=2	**Analyze steering system mechanics**	Steering system, calculations, types	Lectures and practical training	Oral exams And practical training
25-26	theoretical=2	**Determine vehicle stability limits**	Overturning and sliding speed	Lectures and practical training	Oral exams And practical training
27	theoretical=2	**Analyze piston thermal stresses**	Piston, types, calculation of thermal and tensile stress	Lectures and practical training	Oral exams And practical training
28	theoretical=2	**Evaluate crankshaft stress distribution**	Crankshaft, types, calculation of thermal and tensile stress	Lectures and practical training	Oral exams And practical training
29-30	theoretical=2	**Compare automotive drivetrain configurations**	Study of various design car system (car with front engine mounted and rear wheel drive, car with front engine and rear wheel drive, car with rear engine mounted and wheel drive system	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 15 marks for the first theoretical semester
2- 15 marks for the second semester, theoretical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Automotive mechanics textbook
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Internal combustion engines**
2. Course Code:	MPT-206-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Ali Jassim Attia	Email: ali.atiyah.iba115@atu.edu.iq

8. Course Objectives

Course Objectives	**Teaching the student the basic concepts of automobile mechanics and how to solve problems**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	theoretical=2 practical=2	**Understand engine terminology fundamentals**	Basic engine nomenclature	Lectures and practical training	Oral exams And practical training
2	theoretical=2 practical=2	**Explain four-stroke engine cycles**	Four – stroke cycle spark – ignition engine four – stroke cycle compression ignition engine	Lectures and practical training	Oral exams And practical training
3	theoretical=2 practical=2	**Analyze four-stroke valve timing**	Valves timing for 4- stroke engine	Lectures and practical training	Oral exams And practical training
4	theoretical=2 practical=2	**Compare two and four-stroke engines**	Two – stroke engine, comparison of two stroke and four stroke engine, valves timing for 2- stroke engine	Lectures and practical training	Oral exams And practical training

5	theoretical=2 practical=2	**Explain two-stroke scavenging systems**	Save engine systems for 2- stroke engines	Lectures and practical training	Oral exams And practical training
6-7-8	theoretical=2 practical=2	**Evaluate engine performance parameters**	Engine performance and resting, performance parameters for 4- strike engine and 2- stroke engine, basic measurements indications	Lectures and practical training	Oral exams And practical training
9-10-11	theoretical=2 practical=2	**Compare SI and CI performance**	Performance of S. I. Engine performance of C. I. Engine Illustrative examples	Lectures and practical training	Oral exams And practical training
12	theoretical=2 practical=2	**Prepare engine heat balance**	Engine heat balance sheet	Lectures and practical training	Oral exams And practical training
13	theoretical=2 practical=2	**Analyze mixture strength effects**	Effect of strength mixture (Fr) on engine performance factors	Lectures and practical training	Oral exams And practical training
14	theoretical=2 practical=2	**Explain SI engine combustion**	Combustion in S. I. Engines stages of combustion in S. I. Engine	Lectures and practical training	Oral exams And practical training
15	theoretical=2 practical=2	**Evaluate combustion influencing variables**	Inject of engine variable on stages of combustion in S. I. Engine	Lectures and practical training	Oral exams And practical training
16	theoretical=2 practical=2	**Analyze detonation and knocking effects**	Detonation or knocking in S. I. Engine effects of detonation	Lectures and practical training	Oral exams And practical training
17	theoretical=2 practical=2	**Explain pre-ignition control methods**	Control of duration , pre-ignition , effect of pre-ignition on engine	Lectures and practical training	Oral exams And practical training
18	theoretical=2 practical=2	**Describe SI combustion chamber designs**	S.I. engine combustion chamber designs	Lectures and practical training	Oral exams And practical training
19	theoretical=2 practical=2	**Explain carburetion system principles**	Carburetion in S. I. Engine	Lectures and practical training	Oral exams And practical training
20	theoretical=2 practical=2	**Calculate air-fuel ratio**	Simple carburetor – calculation of the Air-fuel nation for a simple carburetor	Lectures and practical training	Oral exams And practical training
21	theoretical=2 practical=2	**Describe SI fuel injection systems**	Injection fuel systems in S.I. engine	Lectures and practical training	Oral exams And practical training
22	theoretical=2 practical=2	**Explain CI engine combustion**	Combustion in C. I engines , stages of combustion in C.I. engine , variable affecting , stages of combustion	Lectures and practical training	Oral exams And practical training

23	theoretical=2 practical=2	**Analyze diesel knock control**	Diesel knock methods of controlling diesel knock	Lectures and practical training	Oral exams And practical training
24	theoretical=2 practical=2	**Describe CI combustion chamber designs**	C. I. Engine combustion chamber designs	Lectures and practical training	Oral exams And practical training
25	theoretical=2 practical=2	**Explain diesel injection systems**	Fuel injection in C. I. Engine requirements of diesel injection system , types of injection systems , types of fuel injectors and nozzles	Lectures and practical training	Oral exams And practical training
26	theoretical=2 practical=2	**Evaluate engine fuel characteristics**	Fuel , specification , fuels for S. I. Engines , Octane number requirement , additives , fuels for C. I. Engine Octane number additives	Lectures and practical training	Oral exams And practical training
27	theoretical=2 practical=2	**Analyze supercharging performance effects**	Effect of supercharging on performance of the engine supercharging types	Lectures and practical training	Oral exams And practical training
28	theoretical=2 practical=2	**Explain engine lubrication systems**	Engine friction and lubrication , additives	Lectures and practical training	Oral exams And practical training
29	theoretical=2 practical=2	**Analyze SI engine emissions**	Pollutants from S. I. Engine , effect of engine maintenance on exhaust emissions , emissions control	Lectures and practical training	Oral exams And practical training
30	theoretical=2 practical=2	**Compare diesel and gasoline emissions**	Diesel emissions , diesel smoke and its control comparison diesel and gasoline emissions	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Internal combustion engines book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Industrial drawing**
2. Course Code:	MPT-207-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Sarah Salim Hasan	Email: **sara.hassan.iba101@atu.edu.iq**

8. Course Objectives

Course Objectives	**Teaching the student to perform engineering drawing using the AutoCAD program**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Practical=3	**Apply geometric drawing principles**	General review of first grade topics, geometric lines, projections, sections, setting dimensions using AutoCAD.	Lectures and practical training	Oral exams And practical training
3-2	Practical=3	**Identify screw connection methods**	Methods of connection using screws, types of screws, types of nuts, with a drawing of a board.	Lectures and practical training	Oral exams And practical training
5-4	Practical=3	**Design bolted assembly plates**	Connecting by bolts, their types, their uses, drawing an assembly plate	Lectures and practical training	Oral exams And practical training

7-6	Practical=3	**Apply welding connection symbols**	Connecting by welding, welding symbols, drawing an assembly plate with welding symbols	Lectures and practical training	Oral exams And practical training
9-8	Practical=3	**Draw riveted assembly plates**	Connecting by rivets, shapes of rivets, types of connecting by rivets, drawing an assembly plate	Lectures and practical training	Oral exams And practical training
10	Practical=3	**Perform lever assembly procedures**	Application plate for disassembling and assembling a mechanical lever	Lectures and practical training	Oral exams And practical training
11	Practical=3	**Draw compression spring applications**	Springs, their types, their uses, drawing a plate for a compression spring	Lectures and practical training	Oral exams And practical training
12	Practical=3	**Execute valve assembly operations**	Drawing an application plate for disassembling and assembling an exhaust valve	Lectures and practical training	Oral exams And practical training
13	Practical=3	**Design column coupler assemblies**	Column connections (couplers) their types, drawing an application plate	Lectures and practical training	Oral exams And practical training
14	Practical=3	**Draw clutch assembly plates**	Clutches, their types and uses, with drawing an application plate	Lectures and practical training	Oral exams And practical training
15	Practical=3	**Assemble friction bearing plates**	Bearing chairs Drawing an assembly plate for a friction load chair	Lectures and practical training	Oral exams And practical training
16	Practical=3	**Design pulley-belt assemblies**	Pulleys and belts (Pulley & Belts) their types and uses with drawing two plates for assembling parts containing belt wheels of different types	Lectures and practical training	Oral exams And practical training
18-17	Practical=3	**Draw spur gear assemblies**	Gears (Gears) their types, Spur gears basic definitions, drawing an equal gear with an assembly plate for engaging the equal gear	Lectures and practical training	Oral exams And practical training
20-19	Practical=3	**Assemble bevel gear components**	Bevel gears (Bevel gears) Basic definitions with a drawing of an assembly board for the bevel gear	Lectures and practical training	Oral exams And practical training
22-21	Practical=3	**Explore Autodesk Inventor environment**	Introduction to Autodesk Inventor	Lectures and practical training	Oral exams And practical training
23	Practical=3	**Create 2D engineering drawings**	2D drawing environment – Environment	Lectures and practical training	Oral exams And practical training
24-25	Practical=3	**Assemble parts in Inventor**	Assembly environment	Lectures and practical training	Oral exams And practical training
26-27	Practical=3	**Analyze part motion dynamics**	Dynamic analysis and movement environment	Lectures and practical training	Oral exams And practical training
28	Practical=3	**Apply CAD feature enhancements**	Feature and enhancement	Lectures and practical training	Oral exams And practical

					training
30-29	Practical=3	**Execute practical CAD projects**	A project within the jurisdiction of the relevant department for a part of any practical system	Lectures and practical training	Oral exams And practical training

11.Course Evaluation	
The degree is distributed 1- 15 marks for practical. for the first semester 2- 15 marks for practical. for the second semester 3 - 10 marks for student activities 4 - 60 marks final exam	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Engineering drawing book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Car maintenance2**
2. Course Code	MPT-203-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
6. Number of Credit Hours (Total) / Number of Units (Total):	**240 Hours / 16 Units**
7. Course administrator's name (mention all, if more than one name)	
Name: Laith Salim Kamal	Email: Layth.kamal@atu.edu.iq

8. Course Objectives

Course Objectives	**Teaching the student about car breakdowns and how to maintain them**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	Theoretical=2 Practical=6	**Analyze clutch system components**	Clutch, types of single and multi-disc clutches, clutch components (friction disc - pressure disc - release seat) clutch troubles, diagnostic and maintenance methods	Lectures and practical training	Oral exams And practical training
3-4-5	Theoretical=2 Practical=6	**Evaluate transmission system performance**	The transmission group, the importance of the transmission group, the parts of the transmission group and the harmonic slip - the harmonic device, the troubles of the transmission group and methods of detecting and maintaining them	Lectures and practical training	Oral exams And practical training
6-7-8-9	Theoretical=2 Practical=6	**Explain autonomous**	Autonomous transmission group, fluid delivery system, torque converter,	Lectures and practical training	Oral exams And practical training

		transmission operations	installation of the autonomous transmission group, how it works, control system of the autonomous transmission group, group malfunctions and methods for detecting and maintaining them.		
10	Theoretical=2 Practical=6	**Design and maintain drive shafts**	Drive shaft, its types (hollow and solid, universal joints, their installation and operation, drive shaft problems, methods of detecting and maintaining them, four-wheel drive cars and four-wheel drive cars 4matic	Lectures and practical training	Oral exams And practical training
11-12	Theoretical=2 Practical=6	**Analyze rear axle components**	The rear axle, an explanation of its various parts, how it works, its malfunctions, and methods of detecting and maintaining it	Lectures and practical training	Oral exams And practical training
13-14	Theoretical=2 Practical=6	**Evaluate vehicle suspension systems**	Suspension, its types (independent and non-independent), complete suspension, independence, the idea of electronically controlled hydraulic suspension.	Lectures and practical training	Oral exams And practical training
15	Theoretical=2 Practical=6	**Identify drive train components**	Drive train, group components, types of steering boxes	Lectures and practical training	Oral exams And practical training
16	Theoretical=2 Practical=6	**Diagnose drive train issues**	Drive train problems and ways to detect and maintain them	Lectures and practical training	Oral exams And practical training
17-18	Theoretical=2 Practical=6	**Analyze hydraulic drive systems**	Hydraulic drive group (types), how it works, hydraulic drive group problems, and methods of detecting and maintaining them	Lectures and practical training	Oral exams And practical training
19	Theoretical=2 Practical=6	**Evaluate spring and shock systems**	Types of springs (leaf and spiral), columns that deter shocks, problems with springs, and methods of detecting and maintaining them.	Lectures and practical training	Oral exams And practical training
20	Theoretical=2 Practical=6	**Determine correct wheel alignment**	Wheel angles	Lectures and practical training	Oral exams And practical training
21-22	Theoretical=2 Practical=6	**Apply vehicle auxiliary systems**	Parking, types of parking (disc, drum, hydraulic and pneumatic), the idea of auxiliary systems ABS, anti-lock system, anti-slip system during acceleration (ASD), automatic distance maintenance system Distomatic	Lectures and practical training	Oral exams And practical training
23-24	Theoretical=2 Practical=6	**Compare suspension system types**	Suspension, its types (independent and non-independent), complete suspension, independence, the idea of electronically controlled hydraulic suspension.	Lectures and practical training	Oral exams And practical training

25	Theoretical=2 Practical=6	**Design drive train assemblies**	Drive train, group components, types of steering boxes	Lectures and practical training	Oral exams And practical training
26	Theoretical=2 Practical=6	**Maintain drive train components**	Drive train problems and ways to detect and maintain them	Lectures and practical training	Oral exams And practical training
27-28	Theoretical=2 Practical=6	**Diagnose hydraulic drive issues**	Hydraulic drive group (types), how it works, hydraulic drive group problems, and methods of detecting and maintaining them	Lectures and practical training	Oral exams And practical training
29-30	Theoretical=2 Practical=6	**Maintain spring and shock systems**	Types of springs (leaf and spiral), columns that deter shocks, problems with springs, and methods of detecting and maintaining them.	Lectures and practical training	Oral exams And practical training

11.Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Modern car maintenance book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Cars Electricity (2)**
2. Course Code:	**MPT-204-24-YM**
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Zena Salah Hasan	Email: zena@atu.edu.iq
8. Course Objectives	
Course Objectives	**Teaching the student the basic concepts of car electricals**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
2-1	theoretical=1 Practical=2	**Explain DC charging systems**	Charging circuit (direct current, generator, regulator), parts of the generator and its working principle	Lectures and practical training	Oral exams And practical training
3	theoretical=1 Practical=2	**Diagnose DC generator faults**	Maintaining the generator and diagnosing its faults (DC) using a special testing device	Lectures and practical training	Oral exams And practical training
4	theoretical=1 Practical=2	**Analyze DC regulator operation**	The direct current regulator, its parts, its operation, and diagnosing its malfunctions	Lectures and practical training	Oral exams And practical training
5	theoretical=1 Practical=2	**Explain AC generator principles**	Alternating current (AC) generator, its parts, and its operation	Lectures and practical training	Oral exams And practical training
6	theoretical=1 Practical=2	**Compare DC and AC generators**	Malfunctions in the charging circuit of the alternating current generator, methods of diagnosing and repairing them, and explaining the differences between direct and alternating current generators.	Lectures and practical training	Oral exams And practical training

7	theoretical=1 Practical=2	**Identify AC regulator types**	Alternating current regulator and its different types	Lectures and practical training	Oral exams And practical training
8	theoretical=1 Practical=2	**Perform armature wire winding**	Winding wires for the armature	Lectures and practical training	Oral exams And practical training
9-10	theoretical=1 Practical=2	**Understand conventional ignition systems**	Regular ignition system (battery - main switch - ignition coil - spark distributor - spark plugs - connection wires)	Lectures and practical training	Oral exams And practical training
11-12	theoretical=1 Practical=2	**Maintain conventional ignition systems**	Service and maintenance of the ignition system (checking the ignition coil - condenser - spark distributor - adjusting the ignition)	Lectures and practical training	Oral exams And practical training
13	theoretical=1 Practical=2	**Use oscilloscope for diagnosis**	Use an oscilloscope to check the ignition system	Lectures and practical training	Oral exams And practical training
14	theoretical=1 Practical=2	**Operate electrical testing devices**	Testing device (current and voltage regulator)	Lectures and practical training	Oral exams And practical training
15	theoretical=1 Practical=2	**Check distributor system operation**	Using a modern electrical device to check the validity of the dispenser (Distributor tester).	Lectures and practical training	Oral exams And practical training
16	theoretical=1 Practical=2	**Perform spark timing adjustments**	Use of the modern spark timing device, its applications and spark tuning	Lectures and practical training	Oral exams And practical training
17	theoretical=1 Practical=2	**Analyze exhaust and ignition**	Using an infra-red exhaust emission tester to analyze the exhaust, determine the validity of spark plugs, and find system faults.	Lectures and practical training	Oral exams And practical training
18-19	theoretical=1 Practical=2	**Understand electronic ignition systems**	Electronic ignition system	Lectures and practical training	Oral exams And practical training
20	theoretical=1 Practical=2	**Maintain automotive lighting systems**	Lighting system (side, main and interior)	Lectures and practical training	Oral exams And practical training
21	theoretical=1 Practical=2	**Operate auxiliary electrical devices**	Side signal cutting device - electronic lighting clip - windshield wiper device - electric fuel pump	Lectures and practical training	Oral exams And practical training
22	theoretical=1 Practical=2	**Diagnose lighting system faults**	Malfunctions of the front, rear, and side lighting system and interior lights	Lectures and practical training	Oral exams And practical training
23-24	theoretical=1 Practical=2	**Analyze automotive auxiliary systems**	Auxiliary electrical devices in the car (fuel gauge - oil pressure gauge - temperature gauge - charging current gauge)	Lectures and practical training	Oral exams And practical training
25-26	theoretical=1 Practical=2	**Maintain secondary electrical circuits**	Secondary electrical circuits in the car (alarm circuits - side and quad signal circuits - windshield wiper	Lectures and practical training	Oral exams And practical training

			circuits - radio tape recorder circuits)		
27	theoretical=1 Practical=2	**Operate door and window circuits**	The electrical circuit to control car doors and windows	Lectures and practical training	Oral exams And practical training
28	theoretical=1 Practical=2	**Analyze automotive HVAC systems**	Car air conditioning and heating devices (electrical system)	Lectures and practical training	Oral exams And practical training
29	theoretical=1 Practical=2	**Operate automotive alarm systems**	Car alarm and electronic control system	Lectures and practical training	Oral exams And practical training
30	theoretical=1 Practical=2	**Test automotive electrical systems**	Using an oscilloscope to check the operation of a car's engine with a screen and its electrical system, and using a calculator for the test.	Lectures and practical training	Oral exams And practical training

11.Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Automotive Electrical Systematic Book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Modern Car Technology**
2. Course Code:	**MPT-205-24-YM**
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Raed Qaed Ajami	Email: raied.ajmi.iba112@atu.edu.iq

8. Course Objectives

Course Objectives	**Introducing the student to the modern systems found in modern cars - their operation - their advantages - their malfunctions**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
2-1	Theoretical=1 practical =2	**Apply modern car diagnostics**	Review of modern car system inspection devices and learn about inspection methods that keep pace with the progress in car technology	Lectures and practical training	Oral exams And practical training
5-3	Theoretical=1 practical =2	**Control electronic engine valves**	Electronic control system for opening and closing engine valves	Lectures and practical training	Oral exams And practical training
7-6	Theoretical=1 practical =2	**Operate electronic transmission systems**	Electronic control system for transmission control module	Lectures and practical training	Oral exams And practical training
10-8	Theoretical=1 practical =2	**Analyze ABS and safety systems**	Electronic control system for anti-lock braking system ABS-ECU and collision prevention system-Discs brake pad damage sensing system	Lectures and practical training	Oral exams And practical training

11	Theoretical=1 practical =2	**Evaluate vehicle traction systems**	Car traction control system	Lectures and practical training	Oral exams And practical training
13-12	Theoretical=1 practical =2	**Analyze vehicle stability control**	Car stability control system automatic stability control unit	Lectures and practical training	Oral exams And practical training
14	Theoretical=1 practical =2	**Operate cruise control system**	Cruise control system	Lectures and practical training	Oral exams And practical training
15	Theoretical=1 practical =2	**Control power steering systems**	Power assisted steering control unit	Lectures and practical training	Oral exams And practical training
17-16	Theoretical=1 practical =2	**Evaluate intelligent suspension systems**	Smart suspension system	Lectures and practical training	Oral exams And practical training
18	Theoretical=1 practical =2	**Operate automotive navigation systems**	-Car navigation system auto navigation system	Lectures and practical training	Oral exams And practical training
19	Theoretical=1 practical =2	**Manage central body electronics**	Central body control unit	Lectures and practical training	Oral exams And practical training
20	Theoretical=1 practical =2	**Understand automotive airbag systems**	Airbag system	Lectures and practical training	Oral exams And practical training
22-21	Theoretical=1 practical =2	**Analyze exhaust and catalyst systems**	Modern exhaust systems and catalyst technology	Lectures and practical training	Oral exams And practical training
25-23	Theoretical=1 practical =2	**Evaluate hybrid fuel technologies**	Hybrid car technology and fuel cell uses	Lectures and practical training	Oral exams And practical training
26	Theoretical=1 practical =2	**Operate smart lamp systems**	Smart lamp systems-Tire pressure measurement system	Lectures and practical training	Oral exams And practical training
27	Theoretical=1 practical =2	**Analyze automotive sensor systems**	Various sensor systems (dead angle-wrong overtaking-etc.)	Lectures and practical training	Oral exams And practical training
28	Theoretical=1 practical =2	**Operate automatic parking systems**	Automatic parking system	Lectures and practical training	Oral exams And practical training
30-29	Theoretical=1 practical =2	**Review modern automotive innovations**	Review of the latest developments in modern car technology	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Car modern systems book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Car body**
2. Course Code:	**MPT-202-24-YM**
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Ahmed Hadi Hatif	Email: ahmed.shuber@gmail.com
8. Course Objectives	
Course Objectives	**Teaching the student the basic concepts of mechanical work, mate properties, and problem solving**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical=1 practical =2	**Understand automobile industry development**	An overview of the development of the automobile industry	Lectures and practical training	Oral exams And practical training
2	Theoretical=1 practical =2	**Analyze vehicle body structures**	An overview of the manufacture of the car body and structure, building the body and learning about the different designs of car bodies and bodies.	Lectures and practical training	Oral exams And practical training
4-3	Theoretical=1 practical =2	**Identify automotive engineering materials**	Engineering materials used in the manufacture of the car body and body, ferrous materials, non-ferrous materials (types and specifications(	Lectures and practical training	Oral exams And practical training
5	Theoretical=1 practical =2	**Evaluate material mechanical properties**	Properties of engineering materials (physical properties, mechanical properties ,brittleness, mechanical tests(	Lectures and practical training	Oral exams And practical training
6	Theoretical=1 practical =2	**Understand basic stress-strain**	Stress and simple emotion	Lectures and practical training	Oral exams And practical training

7	Theoretical=1 practical =2	**Analyze vertical stress-strain**	Direct or vertical stress, direct strain	Lectures and practical training	Oral exams And practical training
8	Theoretical=1 practical =2	**Apply Hooke's law principles**	Elastic materials - Hooke's law	Lectures and practical training	Oral exams And practical training
9	Theoretical=1 practical =2	**Calculate material elasticity modulus**	Modulus of elasticity - Young's modulus	Lectures and practical training	Oral exams And practical training
10	Theoretical=1 practical =2	**Interpret stress-strain diagrams**	Tensile test (stress-strain diagram(	Lectures and practical training	Oral exams And practical training
11	Theoretical=1 practical =2	**Solve basic stress problems**	Relatively simple transformation problems	Lectures and practical training	Oral exams And practical training
12	Theoretical=1 practical =2	**Perform arc welding procedures**	Arc welding, arc initiation and arc re-initiation	Lectures and practical training	Oral exams And practical training
13	Theoretical=1 practical =2	**Apply spot welding techniques**	Electrical resistance welding - spot welding	Lectures and practical training	Oral exams And practical training
15-14	Theoretical=1 practical =2	**Operate oxy-acetylene welding**	Gas welding - heating sources - oxy equipment Acetylene - Oxy torch Acetylene - Types of torches	Lectures and practical training	Oral exams And practical training
16	Theoretical=1 practical =2	**Design and analyze riveted joints**	Fastening with rivets, types of fastening (combinations, combinations), finding the tensile force in the rivet, solved problems	Lectures and practical training	Oral exams And practical training
17	Theoretical=1 practical =2	**Compare welding and riveting**	Comparison between welding and riveting (advantages and disadvantages(	Lectures and practical training	Oral exams And practical training
19-18	Theoretical=1 practical =2	**Apply robotics in automotive**	Robot ,the advantages of robot over humans and its various uses in the automobile industry	Lectures and practical training	Oral exams And practical training
21-20	Theoretical=1 practical =2	**Perform hot and cold forging**	Forming ,cold forging and forging processes, types, hot forging and forging processes, types	Lectures and practical training	Oral exams And practical training
22	Theoretical=1 practical =2	**Analyze vehicle structural designs**	Study the designs of the vehicle structure	Lectures and practical training	Oral exams And practical training
23	Theoretical=1 practical =2	**Evaluate automotive corrosion factors**	Corrosion and the effect of weather and other factors on the car body	Lectures and practical training	Oral exams And practical training
24	Theoretical=1 practical =2	**Prepare surfaces for painting**	Painting the car, preparing the body and parts to be painted, and cleaning them ,include removing corroded and damaged parts.	Lectures and practical training	Oral exams And practical training
25	Theoretical=1 practical =2	**Perform surface finishing operations**	Phosphorescent ,basic dye, putty and polishing works	Lectures and practical training	Oral exams And practical training
26	Theoretical=1 practical =2	**Apply automotive color matching**	Basic dyes, their types, methods of mixing colors, matching colors (according to the tables(	Lectures and practical training	Oral exams And practical training
27	Theoretical=1 practical =2	**Perform laboratory dyeing techniques**	Dyeing method in production laboratories	Lectures and practical training	Oral exams And practical training

28	Theoretical=1 practical =2	**Execute final body polishing**	Final polishing and finishing operations	Lectures and practical training	Oral exams And practical training
29	Theoretical=1 practical =2	**Diagnose and fix paint issues**	Paint problems, their diagnosis, treatment methods, and causes	Lectures and practical training	Oral exams And practical training
30	Theoretical=1 practical =2	**Repair and install auto glass**	Auto glass, types, repairs and installation of front, rear and side glass	Lectures and practical training	Oral exams And practical training

11.Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Car parts book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Academic program description

1. Academic Department	**Power Mechanics Technology Department**
2. Name of Academic or Professional Program	**Spinning and Textiling Branch**
3. Date of Preparation of this Description	**2/ 12 / 2025**
4. Name of Final Certificate	**Technical Diploma**
5. Academic System	**Annual**
6. Accredited Accreditation Program	**ABET**
7. Other External Influences	**Textile companies - private sector**

1. Program Vision
The Department of Power Mechanics is one of the main technological departments. The department is moving towards expanding the base of technical education and its modern applications to be a leader in providing certified technical services and a spirit of competition and cooperation with the community.
2. Program Mission
The Department of Power Mechanics adopts a general message based in its general form on the framework of technical education in Iraq, a message that it seeks to achieve every year to highlight the department's distinctive face. The general objectives focus on graduating national technical cadres at the level of technical development to keep pace with rapid global technical developments. The special message includes the following: - • Using computer and Internet technologies in education and training • Activating the relationship with the private sector in the fields of training • Following up on the development of curricula and training plans and then updating laboratories and workshops • Interacting with the market and the needs of society in rehabilitation and training
3. Program Objectives
Branch Objective: The program aims to prepare specialized cadres in the field of spinning and weaving who are able to: 1. Operate and maintain spinning and weaving machines. 2. Prepare textile designs. 3. Work on knitting machines 4. Computer drawing skills 5. Work on the computer.
4. Program Accreditation
No
5. Other external influences
No , there is no donor

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	**8**	**16**	**%13.3**	All courses are core and there are no electives
College Requirements	**6**	**32**	**%26.7**	All courses are core and there are no electives
Department Requirements	**8**	**72**	**%60**	All courses are core and there are no electives
Summer Training	/	/	/	All courses are core and there are no electives
Other	/	/	/	/

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
1	MPT-101-24-YM	Spinning technique	3	4
	MPT-102-24-YM	Textile fibers	2	3
	MPT-104-24-YM	Engineering mechanics	2	1
	MPT-105-24-YM	Mechanics lab	-	4
	MPT-106-24-YM	Engineering Drawing	-	3
	MPT-107-24-YM	mathematics	2	-
	ATU12-24-YM	Computers and artificial intelligence	1	-
	ATU13-24-YM	Rights and democracy	1	-
	ATU10-24-YM	English language	1	-
	ATU11-24-YM	Arabic language	1	-
2	MPT-201-24-YM	Textile structures	2	3
	MPT-202-24-YM	Techniques and maintenance of textile machines	3	4
	MPT-203-24-YM	Knitting technique	1	2
	MPT-204-24-YM	Quality control	1	2
	MPT-205-24-YM	Electrical technology	1	2
	MPT-207-24-YM	Industrial drawing	-	3
	MPT-208-24-YM	Project	2	-
	MPT-209-24-YM	Industrial management	2	-
	ATU22-24-YM	Computers and artificial intelligence	1	-
	ATU24-24-YM	Baath crimes	1	-
	ATU20-24-YM	English language	1	-
	ATU21-24-YM	Arabic language	1	-

8. Expected learning outcomes of the program

Knowledge

1. Applies modern knowledge, skills, and tools with precision in specific engineering activities.
2. Utilizes knowledge in mathematics, engineering, technology, and other sciences to solve engineering problems that require a limited scope of application.
3. Conducts the required tests and measurements, performs experiments, and analyzes and interprets the results.

- Applies modern engineering knowledge, skills, and tools accurately in specialized engineering activities.
- Utilizes mathematics, engineering, technology, and related sciences to solve engineering problems of limited scope.

4. Operates and manages spinning machines efficiently and safely.	
Skills	
1. Conducts the required tests and measurements, performs experiments, and analyzes and interprets the results. 2. Identifies, analyzes, and solves limited technical problems. 3. Identifies and utilizes appropriate technical literature in both technical and non-technical environments. 4. Diagnoses mechanical and electrical faults using modern instruments and equipment..	• Conducts the required tests, measurements, and experiments, and analyzes and interprets the results with scientific accuracy. • Identifies and analyzes limited technical problems and proposes appropriate, systematic solutions.
Ethics	
1. Works with the spirit of a unified technical team. 2. Understands and adheres to professional and ethical responsibilities. 3. Commits to quality principles and strives for continuous improvement. 4. Adheres to professional ethics and maintains integrity in technical work.	• Understands and adheres to professional and ethical responsibilities within the engineering work environment. • Commits to quality principles and continuously strives for improvement and development in technical performance.

9. Teaching and Learning Strategies

1. Written lectures.
2. Practical training.
3. Videos using the data viewer.
4.Scientific visits

10. Evaluation methods

1. Continuous testing.
2. Pre and post questions.
3. Semester and final exams.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Industrial Management	Production and Operations				
Assistant Professor	Mechanical engineering	Engineering education technology			1	
Assistant Professor	Electrical Engineering	Electronics			1	
Lecturer	Materials engineering	Ceramic engineering and building materials			1	
Lecturer	Mechanical engineering	Specialization in power mechanics			1	
Lecturer	Mechanical engineering	Specialization in applied mechanics			1	
Lecturer	Electrical power engineering	Electrical power engineering			2	
Lecturer	Materials Physics	Specialization			1	
Assistant Lecturer	Mechanical engineering	Specialization in power mechanics			2	
Assistant Lecturer	Math Science	Dynamic topology			1	
Assistant Lecturer	Computer Science	Cybersecurity major			1	

Assistant Lecturer	Mechanical engineering	Specialization in applied mechanics			5	
Assistant Lecturer	Materials engineering	Ceramic engineering and building materials			1	
Assistant Lecturer	Power Mechanics Engineering Technology	Power Mechanics Engineering Technology			1	
Assistant Lecturer	Materials engineering	Engineering Materials Selection and Identification			1	

Professional Development

Mentoring new faculty members

The head of the department received the new appointees, welcomed them, and directed them to their workplaces in the department, each according to their specialization and academic achievement, so that they could perform the work assigned to them in the best way, for the purpose of continuing the scientific and educational process and directing it in the correct manner in a way that serves the interest of the department and the institution in general.

Professional development of faculty members

1- Teamwork within the group effectively and actively
2- Manage time effectively and set priorities with the ability to work on regular schedules
3- Leadership and the ability to direct and motivate others
4- independence at work.

11. Acceptance Criterion

1- Iraqi nationality
2- Possession of an Iraqi preparatory school certificate supported by certification from the General Directorate of Education in the governorate or an equivalent certificate.
3- The student must be born in 1994 onwards.
4- Successful in the medical examination according to the conditions for each study, and the blind student (who meets the conditions for applying for appropriate humanitarian studies) will be submitted through central admission.
5- Devoted to study. It is not permissible to combine work and study (at the same time) in colleges and morning institutes. This includes employees of all government institutions. In order for them to continue studying, they must obtain a study leave from their departments starting in accordance with the instructions in force. It is not permissible to combine two studies either, and in the event of a dispute being proven. He writes to the Ministry to cancel his acceptance (the student employee can postpone his studies according to the instructions in order to fulfill the condition of completing two years of service - satisfactory to be entitled to obtain study leave and in accordance with the instructions for granting study leave).
6- Among my graduates:
A- The current academic year.
B- The previous academic year of those who are not centrally accepted into any college or institute, and they are accepted according to the minimum limits for the year of their graduation, and if it is proven that
The student's acceptance into any college or institute will be returned to his original acceptance and it will be considered a year of failure for him.
7- Non-Iraqi students who hold an Iraqi preparatory certificate and are accepted centrally will be notified in writing to review the Central Admissions Department / Expatriates Division to state their exemption or demands for tuition fees in foreign currency according to the controls in Chapter Seven.

12. The most important sources of information about the program

1. Methodical books.
2. Lectures.
3. Internet

13. Program Development Plan

1.Holding scientific seminars
2. Holding internal courses
3. Participation in external courses.

Program Skills Outline															
				Required program Learning outcomes											
Year/ Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
1	MPT-101-24-YM	Spinning technique	Basic	√		√		√				√	√		
	MPT-102-24-YM	Textile fibers	Basic	√			√	√		√		√	√		
	MPT-104-24-YM	Engineering mechanics	Basic	√		√			√			√		√	
	MPT-105-24-YM	Mechanics lab	Assistant				√			√				√	
	MPT-106-24-YM	Engineering Drawing	Assistant				√			√				√	√
	MPT-107-24-YM	mathematics	Assistant			√			√		√	√	√		
	ATU12-24-YM	Computers and artificial intelligence	Assistant	√					√	√		√	√	√	
	ATU13-24-YM	Rights and democracy	Assistant		√			√				√	√		
	ATU10-24-YM	English language	Assistant		√		√				√		√		
	ATU11-24-YM	Arabic language	Assistant				√		√	√	√			√	√
2	MPT-201-24-YM	Textile structures	Basic				√			√			√	√	
	MPT-202-24-YM	Techniques and maintenance of textile machines	Basic	√	√			√			√	√	√		

	MPT-203-24-YM	Knitting technique	Basic		√										
	MPT-204-24-YM	Quality control	Basic	√			√			√			√		√
	MPT-205-24-YM	Electrical technology	Basic	√			√			√		√			
	MPT-207-24-YM	Industrial drawing	Basic	√			√			√			√	√	
	MPT-208-24-YM	Project	Assistant				√	√			√	√			
	MPT-209-24-YM	Industrial management	Assistant		√					√			√		
	ATU22-24-YM	Computers and artificial intelligence	Assistant	√	√			√		√			√		
	ATU24-24-YM	Baath crimes	Assistant			√	√			√			√		
	ATU20-24-YM	English language	Assistant				√			√	√	√			
	ATU21-24-YM	Arabic language	Assistant	√			√		√				√	√	

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

Stage 1:-

Course Description Form

1. Course Name:	**Spinning technology**
2. Course Code:	MPT-101-24-YM
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date:	**2/ 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
6. Number of Credit Hours (Total) / Number of Units (Total):	**210 Hours / 14 Units**
7. Course administrator's name (mention all, if more than one name)	
Name: Ansam Ali Hashim	Email: ansamly2@atu.edu.iq

8. Course Objectives

Course Objectives	**Learn about the technology of converting textile fibers into yarn and learn about the machines**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	theoretical=3 Practical=4	**Evaluate textile material suitability**	Properties of textile materials needed to be suitable for spinning and weaving	Lectures and practical training	Oral exams And practical training
2	theoretical=3 Practical=4	**Analyze cotton ginning processes**	Cotton ginning - its definition - its purpose - types of machines - cylindrical ginning - saw ginning - the effect of the ginning process on the mechanical properties of cotton	Lectures and practical training	Oral exams And practical training
3	theoretical=3 Practical=4	**Compare cotton mixing methods**	Mixing and brightening cotton - its purpose - machines - mixing calculations - mixing methods - manual method - mechanical method - modern methods - comparison between different types	Lectures and practical training	Oral exams And practical training
4	theoretical=3 Practical=4	**Calculate cotton mixture price**	Finding the average unit price of a mixture of different cottons with similar prices - applied examples	Lectures and practical training	Oral exams And practical training
5	theoretical=3 Practical=4	**Identify different racket types**	Types of rackets - their definition - use - comparison between different types	Lectures and	Oral exams And practical training

				practical training	
6	theoretical=3 Practical=4	**Explain carding process principles**	The carding process - its definition - its purpose - explanation of the path of the hairs in it - the forces affecting the hairs - calculations	Lectures and practical training	Oral exams And practical training
7	theoretical=3 Practical=4	**Calculate drag and productivity**	Calculations of mechanical drag and real drag - comparing them - calculating total drag - determining exhaust rates - calculating productivity	Lectures and practical training	Oral exams And practical training
8	theoretical=3 Practical=4	**Analyze yarn withdrawal process**	The withdrawal process - its definition - its purpose - the theory of withdrawal -	Lectures and practical training	Oral exams And practical training
9	theoretical=3 Practical=4	**Calculate drawing machine speeds**	Calculating the different speeds of the drawing machine - modern drawing methods - drawing calculations - productivity	Lectures and practical training	Oral exams And practical training
10	theoretical=3 Practical=4	**Evaluate carding process parameters**	The carding process - its definition - its purpose - features - determinants - the relationship of carding to the type of thread - carding theory	Lectures and practical training	Oral exams And practical training
11	theoretical=3 Practical=4	**Prepare carding operations effectively**	Carding preparations - their purpose - stages of preparation - tape winding machine - its calculations - tape assembly and its calculations	Lectures and practical training	Oral exams And practical training
12	theoretical=3 Practical=4	**Determine carding exhaust ratios**	Calculating the exhaust ratio - Types of carding according to the exhaust ratio - Drag and coil weight calculations, output and productivity	Lectures and practical training	Oral exams And practical training
13	theoretical=3 Practical=4	**Calculate yarn and thread numbers**	Calculations of the number of ribbons and yarn - their types - the direct method - the indirect method - the number of cotton yarn - the number of threads for different yarns	Lectures and practical training	Oral exams And practical training
14	theoretical=3 Practical=4	**Apply thread tiger calculations**	Tiger calculations for different threads - applied examples	Lectures and practical training	Oral exams And practical training
15	theoretical=3 Practical=4	**Solve advanced spinning examples**	Additional examples of tigress	Lectures and practical training	Oral exams And practical training
16	theoretical=3 Practical=4	**Explain yarn twisting principles**	The twisting process - its definition - its purpose - explanation of the twisting theory	Lectures and practical training	Oral exams And practical training
17	theoretical=3 Practical=4	**Calculate yarn twist parameters**	A detailed explanation of the twist - calculations - the number of twists in ang - the number of twists in a meter - the relationship of the twist factor to the number - production calculations	Lectures and practical training	Oral exams And practical training
18	theoretical=3 Practical=4	**Understand spinning process methods**	The spinning process - definition - its purpose - spinning , methods - spinning in the s direction and in the z direction	Lectures and practical training	Oral exams And practical training
19	theoretical=3 Practical=4	**Analyze ring spinning advantages**	The ring spinning method - its definition - its advantages – its disadvantages - speed and production calculations - cape spinning - its definition - its advantages - its disadvantages	Lectures and practical training	Oral exams And practical training

20	theoretical=3 Practical=4	**Operate flyer spinning machines**	Flyer spinning method - definition - parts - advantages and disadvantages and production calculations	Lectures and practical training	Oral exams And practical training
21	theoretical=3 Practical=4	**Understand open-end spinning**	Open End Spinning-Definition-Detailed Explanation- Advantages and Disadvantages	Lectures and practical training	Oral exams And practical training
22	theoretical=3 Practical=4	**Calculate open-end machine output**	Speed and production calculations for the open-end machine	Lectures and practical training	Oral exams And practical training
23	theoretical=3 Practical=4	**Analyze thread duplication theory**	Thread duplication - definition - purpose - theory and calculations	Lectures and practical training	Oral exams And practical training
24	theoretical=3 Practical=4	**Prepare wool for spinning**	Wool spinning - preparation stages - washing - drying – removing suspended plant materials - mixing wool	Lectures and practical training	Oral exams And practical training
25	theoretical=3 Practical=4	**Identify wool fiber characteristics**	A general introduction to wool fibers - wool tops and their features - methods of production	Lectures and practical training	Oral exams And practical training
26	theoretical=3 Practical=4	**Compare wool yarn production**	Production of wool yarn - the English method - the French method - the conical drawing method	Lectures and practical training	Oral exams And practical training
27	theoretical=3 Practical=4	**Operate Anglo wool machines**	Anglo drawing method - wool spinning machines - their purpose - main parts	Lectures and practical training	Oral exams And practical training
28	theoretical=3 Practical=4	**Analyze wool flyer spinning**	Flyer spinning for wool. A detailed explanation of the machine and its calculations – Sulfameol	Lectures and practical training	Oral exams And practical training
29	theoretical=3 Practical=4	**Compare wool spinning machines**	spinning machine Advantages and disadvantages of the sulfamyl machine - the cape machine for wool spinning - its parts, advantages and disadvantages	Lectures and practical training	Oral exams And practical training
30	theoretical=3 Practical=4	**Evaluate cape machine operations**	A detailed explanation of the cap machine, its parts, calculations, , advantages and disadvantages	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Spinning technique book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Textile fibers**
2. Course Code:	MPT-102-24-YM
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date:	**2/ 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Zahra Kazem Rawdan	Email: zahraakaz78@atu.edu.iq

8. Course Objectives

Course Objectives	**Course objectives: Teach the student about textile fibers, examinations and uses**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	theoretical=2 Practical=2	**Classify textile agent components**	Definition of agent components – general aspect-agent components classification	Lectures and practical training	Oral exams And practical training
2	theoretical=2 Practical=2	**Inspect cotton fiber quality**	Inspection of cotton fibers	Lectures and practical training	Oral exams And practical training
3	theoretical=2 Practical=2	**Treat cotton fibers oxidizing**	Treating the cotton fibers by oxidizing in cold and hot state and study the effects of them on fibers	Lectures and practical training	Oral exams And practical training
4	theoretical=2 Practical=2	**Analyze acid effects cotton**	Treating the cotton fibers by acids in cold and hot state and study the effects of them on fibers	Lectures and practical training	Oral exams And practical training
5	theoretical=2 Practical=2	**Observe fibers under microscope**	Microscopic study for fiber testing –effect offer of acids and bases on jute fibers	Lectures and practical training	Oral exams And practical training
6	theoretical=2 Practical=2	**Analyze acid effects linen**	Effect of acids on linen fibers	Lectures and practical training	Oral exams And practical training
7	theoretical=2 Practical=2	**Treat linen fibers caustic**	Treating the linen fibers by caustic in cold and hot state and study the effects of them on fibers	Lectures and practical training	Oral exams And practical training

8	theoretical=2 Practical=2	**Examine linen and sisal**	Microscopic structure of linen and sisal	Lectures and practical training	Oral exams And practical training
9	theoretical=2 Practical=2	**Sort animal fibers accurately**	Sorting of animal fibers methods	Lectures and practical training	Oral exams And practical training
10	theoretical=2 Practical=2	**Identify microscopic fiber structures**	Microscopic structure	Lectures and practical training	Oral exams And practical training
11	theoretical=2 Practical=2	**Apply wool chlorination techniques**	Chlorination of wool	Lectures and practical training	Oral exams And practical training
12	theoretical=2 Practical=2	**Test wool physical properties**	Testing the natural properties of wool	Lectures and practical training	Oral exams And practical training
13	theoretical=2 Practical=2	**Analyze environmental effects wool**	Study the effect of temp. and moisture on wool fibers	Lectures and practical training	Oral exams And practical training
14	theoretical=2 Practical=2	**Evaluate chemical effects wool**	Effect of acids and alkali on wool fibers	Lectures and practical training	Oral exams And practical training
15	theoretical=2 Practical=2	**Examine silk and mohair**	Microscopic structure of silk and mohair	Lectures and practical training	Oral exams And practical training
16	theoretical=2 Practical=2	**Study asbestos fiber properties**	Study the physical properties of asbestos	Lectures and practical training	Oral exams And practical training
17	theoretical=2 Practical=2	**Define synthetic textile fibers**	Definition of manmade fibers	Lectures and practical training	Oral exams And practical training
18	theoretical=2 Practical=2	**Determine effective fiber length**	Using combing method to determine the effective length of fibers	Lectures and practical training	Oral exams And practical training
19	theoretical=2 Practical=2	**Treat linen fibers acids**	Treating the linen fibers by acid in cold and hot state and study the effects of them on fibers	Lectures and practical training	Oral exams And practical training
20	theoretical=2 Practical=2	**Analyze acid effects jute**	Treating the jute fibers by acids in cold and hot state and study the effects of them on fibers	Lectures and practical training	Oral exams And practical training
21	theoretical=2 Practical=2	**Treat wool fibers acids**	Treating the wool fibers by acids in cold and hot state and study the effects of them on fibers	Lectures and practical training	Oral exams And practical training
22	theoretical=2 Practical=2	**Treat wool fibers alkalis**	Treating the wool fibers by alkalis in cold and hot state and study the effects of them on fibers	Lectures and practical training	Oral exams And practical training
23	theoretical=2 Practical=2	**Treat silk fibers alkalis**	Treating the natural silk fibers by alkalis in cold and hot state and study the effects of them on fibers	Lectures and practical training	Oral exams And practical training
24	theoretical=2 Practical=2	**Evaluate synthetic fiber properties**	Study the physical properties of some manmade fibers	Lectures and practical training	Oral exams And practical training
25	theoretical=2 Practical=2	**Observe glass fibers microscopically**	Study the microscopic properties of glass fibers	Lectures and practical training	Oral exams And practical training
26	theoretical=2 Practical=2	**Test polyamide fibers microscopically**	Poly amide testing in microscope-treating them in acids	Lectures and practical training	Oral exams And practical training
27	theoretical=2 Practical=2	**Examine polyacrylic fibers microscopically**	Microscopic test of poly acrylic	Lectures and practical training	Oral exams And practical training

28	theoretical=2 Practical=2	**Treat polyacrylic fibers alkalis**	Treating poly acrylic by alkalis	Lectures and practical training	Oral exams And practical training
29	theoretical=2 Practical=2	**Use projector for testing**	Using projector device for testing manmade fibers	Lectures and practical training	Oral exams And practical training
30	theoretical=2 Practical=2	**Operate tensile testing devices**	Using tensile test device- maintenance and perpetuation of devises	Lectures and practical training	Oral exams And practical training

11.Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Textile fibers book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Engineering Drawing**
2. Course Code:	MPT-106-24-YM
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date:	**2/ 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Alaa shakier Obaida	Email:**alaashaker2025@gmail.com**
8. Course Objectives	
Course Objectives	**Teaching the student to perform engineering drawing using the AutoCAD program**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Practical=3	**Understand engineering drawing principles**	The importance of engineering drawing - The importance of using a computer to implement engineering drawing - Drawing board sizes (standard) - An overview of the AutoCAD program	Lectures and practical training	Oral exams And practical training
2	Practical=3	**Identify line types accurately**	Types of lines in engineering drawing - using drop-downs for lines and texts	Lectures and practical training	Oral exams And practical training
3-4	Practical=3	**Draw basic geometric shapes**	Basic shapes	Lectures and practical training	Oral exams And practical training

5-6	Practical=3	**Apply drawing aids effectively**	Drawing adjustments - Drawing aids	Lectures and practical training	Oral exams And practical training
7-8-9	Practical=3	**Perform engineering dimensioning operations**	Engineering operations - dimensioning - applications to previous concepts	Lectures and practical training	Oral exams And practical training
10-11-12-13	Practical=3	**Create perspective geometric drawings**	Perspective Drawing - Drawing a perspective containing a circle, rectangle, triangle and polygon	Lectures and practical training	Oral exams And practical training
14-15	Practical=3	**Draw simple engineering projections**	Projection theory - drawing simple projections	Lectures and practical training	Oral exams And practical training
16-17	Practical=3	**Apply dimensions on projections**	Placing dimensions on perspective and projections	Lectures and practical training	Oral exams And practical training
18-19-20	Practical=3	**Summarize multi-site drawings**	Conclusion of the third site from two sites	Lectures and practical training	Oral exams And practical training
21-22-23	Practical=3	**Apply cutting section principles**	Cutting theory - shapes of cutting lines according to the material - drawing cut sections	Lectures and practical training	Oral exams And practical training
24-25-26	Practical=3	**Draw cut projections accurately**	Drawing projections cut from a specific projection	Lectures and practical training	Oral exams And practical training
28-27	Practical=3	**Illustrate partial projection cuts**	Drawing partially cut projections	Lectures and practical training	Oral exams And practical training
30-29	Practical=3	**Execute practical drawing projects**	Applications and projects	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed

1- 15 marks for practical. for the first semester

2- 15 marks for practical. for the second semester

3 - 10 marks for student activities

4 - 60 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Engineering drawing book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Stage 2 :-

Course Description Form

1. Course Name :	**Textile structures**
2. Course Code:	MPT-201-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**2/ 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Alaa Suhail Najim	Email: **aala.najim.iba2@atu.edu.iq**
8. Course Objectives	
Course Objectives	**Teach the student how to prepare histological structures**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	theoretical=2 Practical=3	**Classify woven fabric types**	Classification of woven fabrics	Lectures and practical training	Oral exams And practical training
2	theoretical=2 Practical=3	**Draw and identify weaves**	Standard weaves-plain weaves-drawing repeat derivative –types	Lectures and practical training	Oral exams And practical training
3	theoretical=2 Practical=3	**Analyze color effects fabrics**	Effect of color (plain in warp and weft)and in both direction	Lectures and practical training	Oral exams And practical training
4	theoretical=2 Practical=3	**Draw and analyze twills**	Twill weaves –how to draw-repeat-types-extension	Lectures and practical training	Oral exams And practical training
5	theoretical=2 Practical=3	**Determine twill weave angles**	Angles of twill weaves	Lectures and practical training	Oral exams And practical training
6	theoretical=2 Practical=3	**Identify non-standard twills**	Non-standard twill shades-broken-compound-mixed and cork screw twill	Lectures and practical training	Oral exams And practical training

7	theoretical=2 Practical=3	**Evaluate color direction effects**	Effect of color in warp and weft .	Lectures and practical training	Oral exams And practical training
8	theoretical=2 Practical=3	**Draw and analyze sateens**	Sateen weaves-how to draw—repeat-types	Lectures and practical training	Oral exams And practical training
9	theoretical=2 Practical=3	**Apply harness drawing techniques**	Drawing in types –harness	Lectures and practical training	Oral exams And practical training
10	theoretical=2 Practical=3	**Draw and classify honeycombs**	Honeycomb weaves –how to draw-repeat types	Lectures and practical training	Oral exams And practical training
11	theoretical=2 Practical=3	**Apply extra weft figuring**	Figuring with extra threads (weft) one color	Lectures and practical training	Oral exams And practical training
12	theoretical=2 Practical=3	**Draw one and two-color**	Traditional weft figuring one and two colors	Lectures and practical training	Oral exams And practical training
13	theoretical=2 Practical=3	**Apply extra warp techniques**	Extra warp figuring one and two colors	Lectures and practical training	Oral exams And practical training
14	theoretical=2 Practical=3	**Draw warp figured fabrics**	Traditional warp figuring one and two color	Lectures and practical training	Oral exams And practical training
15	theoretical=2 Practical=3	**Analyze weft packed fabrics**	Packed clothes –weft packed clothes	Lectures and practical training	Oral exams And practical training
16	theoretical=2 Practical=3	**Analyze warp packed fabrics**	Packed clothes –warp packed clothes	Lectures and practical training	Oral exams And practical training
17	theoretical=2 Practical=3	**Identify bad ford cords**	Bad ford cords from weft by warp direction	Lectures and practical training	Oral exams And practical training
18	theoretical=2 Practical=3	**Draw Bolymita one-color fabrics**	Bolymita weaves by one color in face	Lectures and practical training	Oral exams And practical training
19	theoretical=2 Practical=3	**Draw Bolymita two-color fabrics**	Bolymita weaves by two colors in face	Lectures and practical training	Oral exams And practical training
20	theoretical=2 Practical=3	**Analyze warp and weft piles**	Pile fabrics in warp and weft pile fabrics	Lectures and practical training	Oral exams And practical training
21	theoretical=2 Practical=3	**Draw double cloth 2/2**	Multi-layer fabrics –double cloth when use plain 2/2	Lectures and practical training	Oral exams And practical training
22	theoretical=2 Practical=3	**Analyze double cloth structures**	Multi-layer fabrics –double cloth when use plain 2/2	Lectures and practical training	Oral exams And practical training
23	theoretical=2 Practical=3	**Draw double cloth 1/1**	Multi-layer fabrics –double cloth when use plain 1/1	Lectures and practical training	Oral exams And practical training
24	theoretical=2 Practical=3	**Classify gauze weave types**	Gauze weaves types	Lectures and practical training	Oral exams And practical training
25	theoretical=2 Practical=3	**Differentiate gauze weave types**	Straight gauze and reversed gauze	Lectures and practical training	Oral exams And practical training
26	theoretical=2 Practical=3	**Draw perforated mock leno**	Mock leno weaves perforated fabrics	Lectures and practical training	Oral exams And practical training
27	theoretical=2 Practical=3	**Analyze plain weave fabrics**	Analysis of textile plain	Lectures and practical training	Oral exams And practical training
28	theoretical=2 Practical=3	**Analyze twill weave fabrics**	Analysis of textile twill	Lectures and practical training	Oral exams And practical training
29	theoretical=2 Practical=3	**Analyze sateen weave fabrics**	Analysis of textile sateen	Lectures and practical training	Oral exams And practical training

30	theoretical=2 Practical=3	**Summarize textile fabric analysis**	Analysis of textile (review)	Lectures and practical training	Oral exams And practical training

11.Course Evaluation

The degree is distributed

1- 10 marks for the first theoretical semester and 10 marks for practical.

2- 10 marks for the second semester, theoretical + 10 marks for practical

3 - 10 marks for student activities

4 - 50 marks final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Textile fibers book
Main references (sources)	Currently available methodical boo
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Industrial drawing**
2. Course Code:	MPT-207-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**2/ 12 / 2025**
5. Available Attendance Forms:	Attendance In-person

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: Sarah Salim Hasan	Email: sara.hassan.iba101@atu.edu.iq

8. Course Objectives

Course Objectives	**Teaching the student to perform engineering drawing using the AutoCAD program**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Practical=3	**Review fundamental CAD concepts**	General review of first grade topics, geometric lines, projections, sections, setting dimensions using AutoCAD.	Lectures and practical training	Oral exams And practical training
3-2	Practical=3	**Apply screw connection methods**	Methods of connection using screws, types of screws, types of nuts, with a drawing of a board.	Lectures and practical training	Oral exams And practical training
5-4	Practical=3	**Design bolt assembly plates**	Connecting by bolts, their types, their uses, drawing an assembly plate	Lectures and practical training	Oral exams And practical training
7-6	Practical=3	**Use welding symbols correctly**	Connecting by welding, welding symbols, drawing an assembly plate with welding symbols	Lectures and practical training	Oral exams And practical training
9-8	Practical=3	**Assemble riveted components accurately**	Connecting by rivets, shapes of rivets, types of connecting by rivets, drawing an assembly plate	Lectures and practical training	Oral exams And practical training

10	Practical=3	**Disassemble and reassemble lever**	Application plate for disassembling and assembling a mechanical lever	Lectures and practical training	Oral exams And practical training
11	Practical=3	**Draw compression spring plates**	Springs, their types, their uses, drawing a plate for a compression spring	Lectures and practical training	Oral exams And practical training
12	Practical=3	**Disassemble and reassemble valve**	Drawing an application plate for disassembling and assembling an exhaust valve	Lectures and practical training	Oral exams And practical training
13	Practical=3	**Draw column coupler assemblies**	Column connections (couplers) their types, drawing an application plate	Lectures and practical training	Oral exams And practical training
14	Practical=3	**Assemble clutch components accurately**	Clutches, their types and uses, with drawing an application plate	Lectures and practical training	Oral exams And practical training
15	Practical=3	**Draw friction load assemblies**	Bearing chairs Drawing an assembly plate for a friction load chair	Lectures and practical training	Oral exams And practical training
16	Practical=3	**Assemble pulley-belt systems**	Pulleys and belts (Pulley & Belts) their types and uses with drawing two plates for assembling parts containing belt wheels of different types	Lectures and practical training	Oral exams And practical training
18-17	Practical=3	**Draw and assemble spur gears**	Gears (Gears) their types, Spur gears basic definitions, drawing an equal gear with an assembly plate for engaging the equal gear	Lectures and practical training	Oral exams And practical training
20-19	Practical=3	**Draw bevel gear assemblies**	Bevel gears (Bevel gears) Basic definitions with a drawing of an assembly board for the bevel gear	Lectures and practical training	Oral exams And practical training
22-21	Practical=3	**Understand Autodesk Inventor environment**	Introduction to Autodesk Inventor	Lectures and practical training	Oral exams And practical training
23	Practical=3	**Operate 2D CAD environment**	2D drawing environment – Environment	Lectures and practical training	Oral exams And practical training
24-25	Practical=3	**Use CAD assembly environment**	Assembly environment	Lectures and practical training	Oral exams And practical training
26-27	Practical=3	**Perform dynamic motion analysis**	Dynamic analysis and movement environment	Lectures and practical training	Oral exams And practical training
28	Practical=3	**Apply CAD feature enhancements**	Feature and enhancement	Lectures and practical training	Oral exams And practical training
30-29	Practical=3	**Execute department practical projects**	A project within the jurisdiction of the relevant department for a part of any practical system	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 15 marks for practical. for the first semester
2- 15 marks for practical. for the second semester
3 - 10 marks for student activities
4 - 60 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Engineering drawing book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Techniques and maintenance of textile machines**
2. Course Code:	MPT-202-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**2/ 12 / 2025**
5. Available Attendance Forms:	Attendance In-person

6. Number of Credit Hours (Total) / Number of Units (Total): **210 Hours / 14 Units**

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

Name: Israa Adnan Najm	Email: inb.asr10@atu.edu.iq

8. Course Objectives

Course Objectives	**Teaching the student about the parts of textile machines, their preparations, production calculations, and maintenance of the machines**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	theoretical=3 Practical=4	**Explain weaving stages diagram**	A general diagram of the weaving stages and an explanation of the thread numbering system	Lectures and practical training	Oral exams And practical training
2	theoretical=3 Practical=4	**Analyze angled thread numbering**	Angled threads with examples, applications, and numbering of angled threads	Lectures and practical training	Oral exams And practical training
3	theoretical=3 Practical=4	**Prepare warp threads accurately**	Information on the stages of preparation - warp thread preparations	Lectures and practical training	Oral exams And practical training
4	theoretical=3 Practical=4	**Calculate weft recycling productivity**	Recycling stage and productivity calculations	Lectures and practical training	Oral exams And practical training

5	theoretical=3 Practical=4	**Identify blocking machine parts**	Direct and indirect blocking - types of holders - main parts of the blocking machine	Lectures and practical training	Oral exams And practical training
6	theoretical=3 Practical=4	**Perform production process calculations**	Production calculations and creating examples and applications for production processes related to the payment stage	Lectures and practical training	Oral exams And practical training
7	theoretical=3 Practical=4	**Assemble weaving machine components**	Installation and machine parts	Lectures and practical training	Oral exams And practical training
8	theoretical=3 Practical=4	**Apply production process examples**	Production calculations and creating examples and applications of production processes	Lectures and practical training	Oral exams And practical training
9	theoretical=3 Practical=4	**Determine fiber mixture proportions**	Growing mixtures and determining proportions	Lectures and practical training	Oral exams And practical training
10	theoretical=3 Practical=4	**Analyze starching yarn effects**	Examples of making mixtures - Calculations of the effect of starching on the properties of yarns and fabrics	Lectures and practical training	Oral exams And practical training
11	theoretical=3 Practical=4	**Operate throwing and combing**	Throwing and throwing - equipment for throwing and throwing - types of throwing and combing equipment	Lectures and practical training	Oral exams And practical training
12	theoretical=3 Practical=4	**Operate weft recycling equipment**	Weft recycling - pipe recycling machines Production calculations - applied examples of weft turning	Lectures and practical training	Oral exams And practical training
13	theoretical=3 Practical=4	**Calculate weft turning productivity**	Textile - its definition - general information about it - division of textile machines - main and secondary parts	Lectures and practical training	Oral exams And practical training
14	theoretical=3 Practical=4	**Define textile and classification**	Types of textile machines - advantages and disadvantages of each type	Lectures and practical training	Oral exams And practical training
15	theoretical=3 Practical=4	**Compare textile machine types**	Some calculations related to fabric and production efficiency - mathematical examples of production and weights	Lectures and practical training	Oral exams And practical training
16	theoretical=3 Practical=4	**Calculate fabric production efficiency**	Calculating the machine's production in linear meters - applied examples of calculating weights	Lectures and practical training	Oral exams And practical training
17	theoretical=3 Practical=4	**Compute machine production meters**	Calculating the coverage factor - the diameter of the thread depending on its number	Lectures and practical training	Oral exams And practical training
18	theoretical=3 Practical=4	**Calculate thread diameter coverage**	The psyche - internal and external cams - applied examples of - the theory of organizing external cams based on the tissue structure	Lectures and practical training	Oral exams And practical training
19	theoretical=3 Practical=4	**Analyze internal external cams**	Dobby - its types - How to perform some textile structures on the dobby machine	Lectures and practical training	Oral exams And practical training
20	theoretical=3 Practical=4	**Operate dobby textile structures**	Aja card - its types and how to implement some textile structures on it - its energy - types of lattices	Lectures and practical training	Oral exams And practical training
21	theoretical=3 Practical=4	**Implement jacquard textile structures**	How to make some engravings on the jacquard machine	Lectures and practical training	Oral exams And practical training
22	theoretical=3 Practical=4	**Create engravings on jacquard**	Extrusion devices - their types - the shuttle - its definition - identifying single-shuttle and multi-shuttle machines	Lectures and practical training	Oral exams And practical training
23	theoretical=3 Practical=4	**Identify shuttle machine types**	Calculating the coverage factor - the diameter of the thread depending on its number	Lectures and practical training	Oral exams And practical training
24	theoretical=3 Practical=4	**Calculate thread diameter coverage**	The psyche - internal and external cams - applied examples of - the theory of organizing external cams based on the tissue structure	Lectures and practical training	Oral exams And practical training

25	theoretical=3 Practical=4	**Apply external cam theory**	Dobby - its types - How to perform some textile structures on the dobby machine	Lectures and practical training	Oral exams And practical training
26	theoretical=3 Practical=4	**Perform dobby weaving operations**	Ajacard - its types and how to implement some textile structures on it - its energy - types of lattices	Lectures and practical training	Oral exams And practical training
27	theoretical=3 Practical=4	**Operate jacquard textile structures**	How to make some engravings on the jacquard machine	Lectures and practical training	Oral exams And practical training
28	theoretical=3 Practical=4	**Create jacquard engraving patterns**	Extrusion devices - their types - the shuttle - its definition - identifying single-shuttle and multi-shuttle machines	Lectures and practical training	Oral exams And practical training
29	theoretical=3 Practical=4	**Operate single multi-shuttle machines**	The psyche - internal and external cams - applied examples of - the theory of organizing external cams based on the tissue structure	Lectures and practical training	Oral exams And practical training
30	theoretical=3 Practical=4	**Analyze tissue cam organization**	Ajacard - its types and how to implement some textile structures on it - its energy - types of lattices	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed

1- 10 marks for the first theoretical semester and 10 marks for practical.

2- 10 marks for the second semester, theoretical + 10 marks for practical

3 - 10 marks for student activities

4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Machine maintenance book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name :	**Knitting technique**
2. Course Code:	MPT-203-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**2/ 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Alaa Suhal Najim	Email: aala.najim.iba2@atu.edu.iq
8. Course Objectives	
Course Objectives	**Teaching the student the parts of knitting machines, their production calculations, and maintenance of the machines**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	theoretical=1 Practical=2	**Understand knitting industry overview**	Introduction to the topic of knitting and the reasons for its spread	Lectures and practical training	Oral exams And practical training
2	theoretical=1 Practical=2	**Compare knitted and woven fabrics**	Comparison between woven fabrics and knitted fabrics	Lectures and practical training	Oral exams And practical training
3	theoretical=1 Practical=2	**Analyze weft knitting devices**	Study of the main devices in knitting machines (weft knitting) - Study of the types of needles used in knitting machines - their advantages and disadvantages with drawing	Lectures and practical training	Oral exams And practical training
4	theoretical=1 Practical=2	**Identify cam and platinum types**	Study of the types of platinum and the types of cams used	Lectures and practical training	Oral exams And practical training
5	theoretical=1 Practical=2	**Form knots on needles**	How to form a knot on hooked needles with a drawing	Lectures and practical training	Oral exams And practical training

6	theoretical=1 Practical=2	**Calculate yarn tension accurately**	Study of feeding devices for knot formation systems, along with study of tension calculations in yarns according to inactive and active	Lectures and practical training	Oral exams And practical training
7	theoretical=1 Practical=2	**Analyze fabric-drawing relationships**	Study of drawing devices in knitting machines and their relationship to fabric specifications	Lectures and practical training	Oral exams And practical training
8	theoretical=1 Practical=2	**Classify machines by fabric**	Classification of types of machines according to the fabrics produced	Lectures and practical training	Oral exams And practical training
9	theoretical=1 Practical=2	**Classify machines by design**	Classification of machines according to construction and design	Lectures and practical training	Oral exams And practical training
10	theoretical=1 Practical=2	**Identify weft stitch types**	Identify the types of wefts knitting stitches (plain, hem, straight, crossed, and shifted)	Lectures and practical training	Oral exams And practical training
11	theoretical=1 Practical=2	**Compare plain and hemmed fabrics**	Studying the properties of plain and hemmed fabrics and comparing the two types	Lectures and practical training	Oral exams And practical training
12	theoretical=1 Practical=2	**Analyze double and derivative fabrics**	Study of derivative and double compositions and the characteristics of these fabrics	Lectures and practical training	Oral exams And practical training
13	theoretical=1 Practical=2	**Identify warp stitch types**	Studying the types of warps knitting stitches and learning how to represent these stitches in analytical drawings and diagrams	Lectures and practical training	Oral exams And practical training
14	theoretical=1 Practical=2	**Create analytical and schematic drawings**	Practical examples of analytical drawing and schematic drawing	Lectures and practical training	Oral exams And practical training
15	theoretical=1 Practical=2	**Analyze circular knitting machines**	Study of the main devices in the circular knitting machine, along with a schematic diagram of the machine in general	Lectures and practical training	Oral exams And practical training
16	theoretical=1 Practical=2	**Calculate circular machine productivity**	Calculating the productivity of the circular machine with schematic examples	Lectures and practical training	Oral exams And practical training
17	theoretical=1 Practical=2	**Analyze surface knitting machines**	Study of the main devices in the surface knitting machine with a diagram of the machine in general	Lectures and practical training	Oral exams And practical training
18	theoretical=1 Practical=2	**Calculate surface machine productivity**	Calculating the productivity of a surface knitting machine with applied examples	Lectures and practical training	Oral exams And practical training
19	theoretical=1 Practical=2	**Study derby machine knotting**	Study how knots are formed in the derby machine with a diagram of the machine	Lectures and practical training	Oral exams And practical training
20	theoretical=1 Practical=2	**Operate zip lock machines**	Study of the zip lock machine and how to make knots on it	Lectures and practical training	Oral exams And practical training
21	theoretical=1 Practical=2	**Identify knitting machine parts**	Study of parts for a textile knitting machine	Lectures and practical training	Oral exams And practical training
22	theoretical=1 Practical=2	**Calculate textile machine productivity**	A study of the productivity of a textile knitting machine with applied examples	Lectures and practical training	Oral exams And practical training
23	theoretical=1 Practical=2	**Analyze fabric quality foundations**	Studying the foundations upon which quality estimation in woven fabrics depends	Lectures and practical training	Oral exams And practical training
24	theoretical=1 Practical=2	**Identify woven fabric defects**	Study of defects in woven fabrics in general	Lectures and practical training	Oral exams And practical training
25	theoretical=1 Practical=2	**Identify knitted fabric defects**	Study of defects in knitted fabrics in circular knitting machines and sock machines	Lectures and practical training	Oral exams And practical training
26	theoretical=1 Practical=2	**Analyze machine fabric defects**	Study of defects in woven fabrics in textile knitting machines	Lectures and practical training	Oral exams And practical training
27	theoretical=1 Practical=2	**Identify threads used knitting**	Types of threads used in the knitting industry in general	Lectures and practical training	Oral exams And practical training

28	theoretical=1 Practical=2	**Analyze yarn type effects**	The effect of yarn types on the final product	Lectures and practical training	Oral exams And practical training
29	theoretical=1 Practical=2	**Calculate knot lengths accurately**	Calculate the knot length	Lectures and practical training	Oral exams And practical training
30	theoretical=1 Practical=2	**Identify oils and greases**	Identify the types of oils and greases used to maintain sewing machines	Lectures and practical training	Oral exams And practical training

11.Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Machine maintenance book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name	**Electrical Technology**
2. Course Code:	**MPT-205-24-YM**
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**2/ 12 / 2025**
5. Available Attendance Forms:	Attendance In-person

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: Inas Jabbar Mohammed	Email: inasalrubaiy1973@gmail.com

8. Course Objectives

Course Objectives	**Teaching the student, the principles of electricity**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	theoretical=1 Practical=2	**Understand electrical circuit fundamentals**	Electrical units and symbols - components of a simple electrical circuit - Ohm's law	Lectures and practical training	Oral exams and practical training
2	theoretical=1 Practical=2	**Apply Kirchhoff's laws effectively**	Connecting resistors in series and parallel - Kirchhoff's laws and their applications	Lectures and practical training	Oral exams and practical training
3	theoretical=1 Practical=2	**Explain single-phase AC properties**	Single-phase alternating current - its generation, properties and uses.	Lectures and practical training	Oral exams and practical training
4	theoretical=1 Practical=2	**Analyze sine waveform characteristics**	Definition of sine wave - waveform with frequency – value	Lectures and practical training	Oral exams and practical training
5	theoretical=1 Practical=2	**Compare three-phase AC systems**	The effective value of the current and voltage - a comparison between three-phase alternating current and its generation - the phases and their sequence	Lectures and practical training	Oral exams and practical training
6	theoretical=1 Practical=2	**Represent phases using vectors**	Phase angle – representing phases with rotating vectors	Lectures and practical training	Oral exams and practical training
7	theoretical=1 Practical=2	**Understand magnetic field principles**	Principles of electromagnetism - definition of magnetic field - lines of force	Lectures and practical training	Oral exams and practical training
8	theoretical=1 Practical=2	**Analyze magnetic effects electric**	Flux and flux density - magnetic field intensity - magnetic effect of electric current - applied issues	Lectures and practical training	Oral exams and practical training
9	theoretical=1 Practical=2	**Calculate inductance phase effects**	Mutual self-inductance - Henry - Effect of inductance on the sine wave with phase difference calculations - Comparison between electric and magnetic circuits.	Lectures and practical training	Oral exams and practical training

10	theoretical=1 Practical=2	**Analyze capacitance sine waveform**	Capacitance - Farad - The effect of capacitance on the sine wave with voltage difference calculations	Lectures and practical training	Oral exams and practical training
11	theoretical=1 Practical=2	**Explain transformer types principles**	Transformers - their types - their working principle - lift transformers	Lectures and practical training	Oral exams and practical training
12	theoretical=1 Practical=2	**Estimate transformer capacity correctly**	Conservation and isolation transformers - transformer capacity and capacity estimation	Lectures and practical training	Oral exams and practical training
13	theoretical=1 Practical=2	**Understand three-phase motor types**	Three-phase induction motors - their types and working principle	Lectures and practical training	Oral exams and practical training
14	theoretical=1 Practical=2	**Analyze methods increasing speed**	Engine speed and ways to improve it	Lectures and practical training	Oral exams and practical training
15	theoretical=1 Practical=2	**Connect motors star delta**	Connecting motors - delta connection - star connection	Lectures and practical training	Oral exams and practical training
16	theoretical=1 Practical=2	**Calculate star delta parameters**	Line current in delta and star - the use of star and delta in practical life - speed and voltage in both cases	Lectures and practical training	Oral exams and practical training
17	theoretical=1 Practical=2	**Explain single-phase motor theory**	Single-phase alternating current motors - working theory and types	Lectures and practical training	Oral exams and practical training
18	theoretical=1 Practical=2	**Understand condenser motor operations**	Condenser motor - single-phase motor, working theory and types	Lectures and practical training	Oral exams and practical training
19	theoretical=1 Practical=2	**Apply overload protection methods**	Motor protection - fuses and their types - protection against overload	Lectures and practical training	Oral exams and practical training
20	theoretical=1 Practical=2	**Implement temperature and magnetic protection**	Protection against high temperature - thermal cutter - magnetic pick-up cutter	Lectures and practical training	Oral exams and practical training
21	theoretical=1 Practical=2	**Diagnose engine rotation issues**	How to identify faults in engines and how to fix them - the engine does not rotate	Lectures and practical training	Oral exams and practical training
22	theoretical=1 Practical=2	**Handle speed temperature noise**	The engine is running at a slower than normal speed - The engine temperature rises while it is running - Dealing with noise in the engines	Lectures and practical training	Oral exams and practical training
23	theoretical=1 Practical=2	**Identify switch types functions**	Electrical switches, their types and their work	Lectures and practical training	Oral exams and practical training
24	theoretical=1 Practical=2	**Connect microswitch contact points**	Microswitch - types of connections to the contact points	Lectures and practical training	Oral exams and practical training
25	theoretical=1 Practical=2	**Analyze inductance device operations**	Inductance devices, their types and their working principle	Lectures and practical training	Oral exams and practical training
26	theoretical=1 Practical=2	**Adjust and operate time**	Time tracker - how it works and how to adjust it	Lectures and practical training	Oral exams and practical training
27	theoretical=1 Practical=2	**Understand photocell types operations**	Photocell and its types	Lectures and practical training	Oral exams and practical training
28	theoretical=1 Practical=2	**Apply cell operation principles**	The principle of cell operation and its applications	Lectures and practical training	Oral exams and practical training
29	theoretical=1 Practical=2	**Understand Al-Muwahid functionality**	Al-Muwahid - its composition - the principle of its work	Lectures and practical training	Oral exams and practical training
30	theoretical=1 Practical=2	**Explain unified device operation**	Principle of work of unified	Lectures and practical training	Oral exams and practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Electrical technology book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name	**Quality control**
2. Course Code:	MPT-204-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**2/ 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Ansam Ali Hashim	Email: ansamly2@atu.edu.iq

8. Course Objectives

Course Objectives	**Teach the student the principles of quality control**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	theoretical=1 Practical=2	**Calculate spinning repetition rate**	Statistics - its relationship to spinning - calculating the rate - repetition - drawing curves	Lectures and practical training	Oral exams and practical training
2	theoretical=1 Practical=2	**Apply standard deviation measures**	Measures of dispersion - standard deviation - uses of standard deviation	Lectures and practical training	Oral exams and practical training
3	theoretical=1 Practical=2	**Use specification control charts**	control charts and their uses - specification limits	Lectures and practical training	Oral exams and practical training
4	theoretical=1 Practical=2	**Analyze defect distribution maps**	Types of maps - average-range - defect analysis	Lectures and practical training	Oral exams and practical training
5	theoretical=1 Practical=2	**Understand industrial quality sampling**	Sampling theory - the importance of quality control in industry	Lectures and practical training	Oral exams and practical training
6	theoretical=1 Practical=2	**Identify carding machine defects**	Defects in lightening - carding - drawing machines and how to identify them	Lectures and practical training	Oral exams and practical training
7	theoretical=1 Practical=2	**Detect twisting spinning faults**	Identifying defects in twisting, carding and final spinning machines	Lectures and practical training	Oral exams and practical training
8	theoretical=1 Practical=2	**Test yarn number filament**	Tests of thread number and filament length rate	Lectures and practical training	Oral exams and practical training

9	theoretical=1 Practical=2	**Perform thread twisting analysis**	Thread twisting tests	Lectures and practical training	Oral exams and practical training
10	theoretical=1 Practical=2	**Measure thread elongation regularity**	Thread elongation and regularity tests	Lectures and practical training	Oral exams and practical training
11	theoretical=1 Practical=2	**Correlate yarn shawl strength**	The relationship between thread strength and shawl strength	Lectures and practical training	Oral exams and practical training
12	theoretical=1 Practical=2	**Assess yarn physical properties**	Physical specifications of the thread	Lectures and practical training	Oral exams and practical training
13	theoretical=1 Practical=2	**Compare artificial natural yarns**	The relationship between Tano and elongation of different yarns (artificial - natural)	Lectures and practical training	Oral exams and practical training
14	theoretical=1 Practical=2	**Perform filament phenotypic examination**	Phenotypic examination of filaments using simple methods	Lectures and practical training	Oral exams and practical training
15	theoretical=1 Practical=2	**Calculate yarn knot percentage**	Calculating the percentage of knots in the threads	Lectures and practical training	Oral exams and practical training
17-18	theoretical=1 Practical=2	**Operate Aleustar testing device**	A detailed explanation of the Aleustar device, its uses and benefits	Lectures and practical training	Oral exams and practical training
19	theoretical=1 Practical=2	**Measure shrinkage moisture effects**	Fabric tests - dimensional shrinkage - effect of moisture	Lectures and practical training	Oral exams and practical training
20	theoretical=1 Practical=2	**Assess fabric durability accurately**	Fabric durability - measuring it	Lectures and practical training	Oral exams and practical training
21	theoretical=1 Practical=2	**Evaluate fabric external resistance**	The ability of the fabric to resist external conditions	Lectures and practical training	Oral exams and practical training
22	theoretical=1 Practical=2	**Test fabric abrasion resistance**	The ability of the fabric to resist abrasion by friction	Lectures and practical training	Oral exams and practical training
23	theoretical=1 Practical=2	**Measure carpet thickness precisely**	Carpet test - thickness measurement-	Lectures and practical training	Oral exams and practical training
24	theoretical=1 Practical=2	**Conduct carpet friction tests**	Experiments conducted on carpets, such as friction after periods of time	Lectures and practical training	Oral exams and practical training
26	theoretical=1 Practical=2	**Extend previous textile experiments**	Continuation of week 25	Lectures and practical training	Oral exams and practical training
27	theoretical=1 Practical=2	**Analyze effects chemical treatments**	Studying the effect of treating fabric with different materials	Lectures and practical training	Oral exams and practical training
28	theoretical=1 Practical=2	**Examine fabric composition properties**	Examining fabric compositions and their relationship to machines	Lectures and practical training	Oral exams and practical training
29	theoretical=1 Practical=2	**Identify longitudinal transverse defects**	Longitudinal and transverse defects in the fabric	Lectures and practical training	Oral exams and practical training
30	theoretical=1 Practical=2	**Coordinate quality with departments**	The relationship of the control department with the rest of the departments	Lectures and practical training	Oral exams and practical training

11.Course Evaluation

The degree is distributed

1- 10 marks for the first theoretical semester and 10 marks for practical.

2- 10 marks for the second semester, theoretical + 10 marks for practical

3 - 10 marks for student activities

4 - 50 marks final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Quality control book and booklets
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Academic program description

1. Academic Department	Power Mechanics Technology Department
2. Name of Academic or Professional Program	Refrigeration and Air Conditioning Branch
3. Date of Preparation of this Description	4 / 12 / 2025
4. Name of Final Certificate	Technical Diploma
5. Academic System	Annual
6. Accredited Accreditation Program	ABET
7. Other External Influences	Labor Market, Private Sector and Government

1. Program Vision

The Department of Power Mechanics is one of the main technological departments. The department is moving towards expanding the base of technical education and its modern applications to be a leader in providing certified technical services and a spirit of competition and cooperation with the community.

2. Program Mission

The Department of Power Mechanics adopts a general message based in its general form on the framework of technical education in Iraq, a message that it seeks to achieve every year to highlight the department's distinctive face. The general objectives focus on graduating national technical cadres at the level of technical development to keep pace with rapid global technical developments. The special message includes the following: -

• Using computer and Internet technologies in education and training
• Activating the relationship with the private sector in the fields of training
• Following up on the development of curricula and training plans and then updating laboratories and workshops
• Interacting with the market and the needs of society in rehabilitation and training

3. Program Objectives

Branch objective: - Preparing technical cadres in construction and reconstruction projects in the public and private sectors with professionalism in the field of refrigeration and air conditioning and with high dedication. Using computer drawing skills and working on the computer.

4. Program Accreditation

No

5. Other external influences

No, there is no donor

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	**8**	**16**	**%13.8**	All courses are core and there are no electives
College Requirements	**6**	**32**	**%27.6**	All courses are core and there are no electives
Department Requirements	**9**	**68**	**%58.6**	All courses are core and there are no electives
Summer Training	/	/	/	All courses are core and there are no electives
Other	/	/	/	/

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
1	MPT-101-24-YM	Air conditioning - cooling	2	2
	MPT-102-24-YM	Fluids and Thermodynamics	2	1
	MPT-103-24-YM	Electrical technology	2	2
	MPT-104-24-YM	Engineering mechanics	1	2
	MPT-105-24-YM	Mechanics lab	-	6
	MPT-106-24-YM	Engineering Drawing	-	3
	MPT-107-24-YM	Mathematics	2	-
	ATU12-24-YM	Computers and artificial intelligence	1	-
	ATU13-24-YM	Rights and democracy	1	-
	ATU10-24-YM	English language	1	-
	ATU11-24-YM	Arabic language	1	-
2	MPT-201-24-YM	Air conditioner	2	2
	MPT-202-24-YM	Refrigeration Systems	2	2
	MPT-203-24-YM	Heat transfer	2	1
	MPT-204-24-YM	Control systems devices	2	1
	MPT-205-24-YM	Refrigeration and air conditioning equipment maintenance	2	4
	MPT-206-24-YM	Drawing of refrigeration and air conditioning systems	-	3
	MPT-208-24-YM	project	2	-
	MPT-209-24-YM	Industrial management	2	-
	ATU22-24-YM	Computers and artificial intelligence	1	-
	ATU24-24-YM	Baath crimes	1	-
	ATU20-24-YM	English language	1	-
	ATU21-24-YM	Arabic language	1	-

8. Expected learning outcomes of the program

Knowledge	
1. Applies modern knowledge, skills, and tools with precision in specific engineering activities. 2. Utilizes knowledge in mathematics, engineering, technology, and other sciences to solve engineering problems that require a limited scope of application. 3. Conducts the required tests and measurements, performs experiments, and analyzes and interprets the results. 4. Understands the components and parts of refrigeration systems (compressors, evaporators, condensers, expansion valves).	• Applies modern engineering knowledge, skills, and tools accurately in specialized engineering activities. • Utilizes mathematics, engineering, technology, and related sciences to solve engineering problems of limited scope.
Skills	
1. Conducts the required tests and measurements, performs experiments, and analyzes and interprets the results. 2. Identifies, analyzes, and solves limited technical problems. 3. Identifies and utilizes appropriate technical literature in both technical and non-technical environments. 4. Installs and operates refrigeration and air-conditioning systems in accordance with technical drawings.	• Conducts the required tests, measurements, and experiments, and analyzes and interprets the results with scientific accuracy. • Identifies and analyzes limited technical problems and proposes appropriate, systematic solutions.

Ethics	
1. Works with the spirit of a unified technical team. 2. Understands and adheres to professional and ethical responsibilities. 3. Commits to quality principles and strives for continuous improvement. 4. Adheres to professional ethics and maintains integrity in technical work.	• Understands and adheres to professional and ethical responsibilities within the engineering work environment. • Commits to quality principles and continuously strives for improvement and development in technical performance.

9. Teaching and Learning Strategies

1. Written lectures.
2. Practical training.
3. Videos using the data viewer.
4.Scientific visits

10. Evaluation methods

1. Continuous testing.
2. Pre and post questions.
3. Semester and final exams.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Industrial Management	Production and Operations				
Assistant Professor	Mechanical engineering	Engineering education technology			1	
Assistant Professor	Electrical Engineering	Electronics			1	
Lecturer	Materials engineering	Ceramic engineering and building materials			1	
Lecturer	Mechanical engineering	Specialization in power mechanics			1	
Lecturer	Mechanical engineering	Specialization in applied mechanics			1	
Lecturer	Electrical power engineering	Electrical power engineering			2	
Lecturer	Materials Physics	Specialization			1	
Assistant Lecturer	Mechanical engineering	Specialization in power mechanics			2	
Assistant Lecturer	Math Science	Dynamic topology			1	
Assistant Lecturer	Computer Science	Cybersecurity major			1	
Assistant Lecturer	Mechanical engineering	Specialization in applied mechanics			5	
Assistant Lecturer	Materials engineering	Ceramic engineering and building materials			1	
Assistant Lecturer	Power Mechanics Engineering Technology	Power Mechanics Engineering Technology			1	
Assistant Lecturer	Materials engineering	Engineering Materials Selection and Identification			1	

Professional Development

Mentoring new faculty members

The head of the department received the new appointees, welcomed them, and directed them to their workplaces in the department, each according to their specialization and academic achievement, so that they could perform the work assigned to them in the best way, for the purpose of continuing the scientific and educational process and directing it in the correct manner in a way that serves the interest of the department and the institution in general.

Professional development of faculty members

1- Teamwork within the group effectively and actively
2- Manage time effectively and set priorities with the ability to work on regular schedules
3- Leadership and the ability to direct and motivate others
4- independence at work.

12. Acceptance Criterion

1- Iraqi nationality
2- Possession of an Iraqi preparatory school certificate supported by certification from the General Directorate of Education in the governorate or an equivalent certificate.
3- The student must be born in 1994 onwards.
4- Successful in the medical examination according to the conditions for each study, and the blind student (who meets the conditions for applying for appropriate humanitarian studies) will be submitted through central admission.
5- Devoted to study. It is not permissible to combine work and study (at the same time) in colleges and morning institutes. This includes employees of all government institutions. In order for them to continue studying, they must obtain a study leave from their departments starting in accordance with the instructions in force. It is not permissible to combine two studies either, and in the event of a dispute being proven. He writes to the Ministry to cancel his acceptance (the student employee can postpone his studies according to the instructions in order to fulfill the condition of completing two years of service - satisfactory to be entitled to obtain study leave and in accordance with the instructions for granting study leave).
6- Among my graduates:
A- The current academic year.
B- The previous academic year of those who are not centrally accepted into any college or institute, and they are accepted according to the minimum limits for the year of their graduation, and if it is proven that
The student's acceptance into any college or institute will be returned to his original acceptance and it will be considered a year of failure for him.
7- Non-Iraqi students who hold an Iraqi preparatory certificate and are accepted centrally will be notified in writing to review the Central Admissions Department / Expatriates Division to state their exemption or demands for tuition fees in foreign currency according to the controls in Chapter Seven.

13. The most important sources of information about the program

1. Methodical books.
2. Lectures.
3. Internet

14. Program Development Plan

1.Holding scientific seminars
2. Holding internal courses
3. Participation in external courses.

Program Skills Outline															
				Required program Learning outcomes											
Year/ Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
1	MPT-101-24-YM	Air conditioning - cooling	Basic	√		√		√				√	√		
	MPT-102-24-YM	Fluids and Thermodynamics	Basic	√			√	√		√		√	√		
	MPT-103-24-YM	Electrical technology	Basic	√		√			√			√		√	
	MPT-104-24-YM	Engineering mechanics	Basic				√			√				√	
	MPT-105-24-YM	Mechanics lab	Assistant				√			√				√	√
	MPT-106-24-YM	Engineering Drawing	Assistant			√			√		√	√	√		
	MPT-107-24-YM	Mathematics	Assistant	√					√	√		√	√	√	
	ATU12-24-YM	Computers and artificial intelligence	Assistant		√			√				√		√	
	ATU13-24-YM	Rights and democracy	Assistant		√		√				√		√		
	ATU10-24-YM	English language	Assistant				√		√	√	√			√	√
	ATU11-24-YM	Arabic language	Assistant				√			√			√	√	
2	MPT-201-24-YM	Air conditioner	Basic	√	√			√			√	√	√		

	MPT-202-24-YM	Refrigeration Systems	Basic		√										
	MPT-203-24-YM	Heat transfer	Basic	√			√			√			√		√
	MPT-204-24-YM	Control systems devices	Basic	√			√			√		√			
	MPT-205-24-YM	Refrigeration and air conditioning equipment maintenance	Basic	√			√	√		√			√	√	
	MPT-206-24-YM	Drawing of refrigeration and air conditioning systems	Basic				√	√			√	√			
	MPT-208-24-YM	project	Assistant			√				√			√		
	MPT-209-24-YM	Industrial management	Assistant	√		√		√		√			√		
	ATU22-24-YM	Computers and artificial intelligence	Assistant		√	√				√			√		
	ATU24-24-YM	Baath crimes	Assistant		√					√	√	√			
	ATU20-24-YM	English language	Assistant		√						√	√			√
	ATU21-24-YM	Arabic language	Assistant	√	√				√				√	√	

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

Stage 1 :-

Course Description Form

1. Course Name:	**Thermodynamics**
2. Course Code:	MPT-102-24-YM
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date:	**4 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Zahraa Kazem Rodhan	Email: zahraakaz78@atu.edu.iq
8. Course Objectives	
Course Objectives	Teaching the student basic principles of thermodynamic ,first law ,and second law of thermodynamic
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-6	theoretical=2 Practical=1	**Understand thermodynamic properties energy**	Thermodynamic term- measuring devices- properties- state – process- cycles –density and specific volume – the pressure (gage, vacuum, and absolute)- temperature relations (Celsius, Kelvin and ranking scale)- energy- renewable energy-resources (solar energy, wind energy, energy of water falling, tidal energy)- hydrocarbons source (oil & gas)-form of energy used in thermodynamic- potential energy-kinetic energy-heat- work. Internal energy-flow work.	Lectures and practical training	Oral exams And practical training

7-8	theoretical=2 Practical=1	**Apply first law systems**	First law of thermodynamics-flow system-nun flow system –steady –un steady –open –closed. examples.	Lectures and practical training	Oral exams And practical training
9 – 10 - 11	theoretical=2 Practical=1	**Analyze thermodynamic system applications**	Applications of the first law on nozzle, diffuser, condenser, evaporator, compressor, heat exchanger (surface, open), turbine, boiler. examples.	Lectures and practical training	Oral exams And practical training
12 - 13	theoretical=2 Practical=1	**Represent processes on diagrams**	Thermodynamic process undergoing at constant (pressure, volume, temperature, enthalpy)- polytrophic process- with representation on a(P-V), (T-S) &(P-H) diagram.	Lectures and practical training	Oral exams And practical training
14	theoretical=2 Practical=1	**Calculate specific heat constants**	Specific heat, kind of specific heat-gas constant.	Lectures and practical training	Oral exams And practical training
15	theoretical=2 Practical=1	**Understand second law principles**	The second law of thermodynamics, statement of the second law, heat engine, heat pump.	Lectures and practical training	Oral exams And practical training
16 – 17	theoretical=2 Practical=1	**Analyze Carnot refrigeration cycles**	Carnot power cycle- reversed Carnot cycle (refrigeration & heat pump applications). Examples.	Lectures and practical training	Oral exams And practical training
18 -19	theoretical=2 Practical=1	**Apply steam table calculations**	Study of steam. Steam properties-using steam tables.	Lectures and practical training	Oral exams And practical training
20	theoretical=2 Practical=1	**Calculate properties liquid-vapor**	Calculations of the properties for (liquid-vapor) mixture (wet steam).	Lectures and practical training	Oral exams And practical training
21 -22	theoretical=2 Practical=1	**Analyze isentropic adiabatic processes**	Steam process under going at constant (pressure, volume)-isentropic process, adiabatic process & applications.	Lectures and practical training	Oral exams And practical training
23 -24	theoretical=2 Practical=1	**Evaluate Rankine cycle processes**	The Rankine cycle, processes of the cycle, examples	Lectures and practical training	Oral exams And practical training
25	theoretical=2 Practical=1	**Understand vapor compression cycles**	The vapor Compression cycle.	Lectures and practical training	Oral exams And practical training
26 -27-28	theoretical=2 Practical=1	**Analyze fuel properties boilers**	Fuel –definition of accounts and properties of the fuel used in boilers and cooling systems absorbance.	Lectures and practical training	Oral exams And practical training
29 -30	theoretical=2 Practical=1	**Identify boiler types characteristics**	Boiler – types – characteristics.	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Fluids book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Engineering Drawing**
2. Course Code:	MPT-106-24-YM
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date:	**4 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Alaa Shaker Aobida	Email: alaashaker2025@gmail.com

8. Course Objectives

Course Objectives	**Teaching the student to perform engineering drawing using the AutoCAD program**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Practical=3	**Understand importance of drawing**	The importance of engineering drawing - The importance of using a computer to implement engineering drawing - Drawing board sizes (standard) - An overview of the AutoCAD program	Lectures and practical training	Oral exams And practical training
2	Practical=3	**Identify line types usage**	Types of lines in engineering drawing - using drop-downs for lines and texts	Lectures and practical training	Oral exams And practical training
3-4	Practical=3	**Draw fundamental geometric shapes**	Basic shapes	Lectures and practical training	Oral exams And practical training

5-6	Practical=3	**Apply drawing aids effectively**	Drawing adjustments - Drawing aids	Lectures and practical training	Oral exams And practical training
7-8-9	Practical=3	**Perform dimensioning accurately applications**	Engineering operations - dimensioning - applications to previous concepts	Lectures and practical training	Oral exams And practical training
10-11-12-13	Practical=3	**Construct perspective geometric objects**	Perspective Drawing - Drawing a perspective containing a circle, rectangle, triangle and polygon	Lectures and practical training	Oral exams And practical training
14-15	Practical=3	**Apply simple projection techniques**	Projection theory - drawing simple projections	Lectures and practical training	Oral exams And practical training
16-17	Practical=3	**Place dimensions on projections**	Placing dimensions on perspective and projections	Lectures and practical training	Oral exams And practical training
18-19-20	Practical=3	**Summarize third site concepts**	Conclusion of the third site from two sites	Lectures and practical training	Oral exams And practical training
21-22-23	Practical=3	**Apply cutting lines properly**	Cutting theory - shapes of cutting lines according to the material - drawing cut sections	Lectures and practical training	Oral exams And practical training
24-25-26	Practical=3	**Draw sections from projections**	Drawing projections cut from a specific projection	Lectures and practical training	Oral exams And practical training
28-27	Practical=3	**Construct partially cut projections**	Drawing partially cut projections	Lectures and practical training	Oral exams And practical training
30-29	Practical=3	**Implement practical engineering projects**	Applications and projects	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Engineering drawing book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Principles of Refrigeration**
2. Course Code:	MPT-101-24-YM
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date:	**4 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person

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: Hussein Ali Sulaiman	Email: hussein.suleiman.iba108@atu.edu.iq

8. Course Objectives

Course Objectives	**the student's information about basic principles of thermodynamic ,first law ,and second law of thermodynamic ,deep study for Carnot power cycle and reverse**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	theoretical=2 Practical=2	**Understand thermodynamic air properties**	Principles of thermodynamics, property, state, Temp. (dry and wet), pressure (Abs., gas, atm.), sp. volume, sp. humidity, Rel. humidity, heat (sense and lat.), dew-point, air conditioning, refrigeration, Ton and refrigeration, refrigeration types, element and equipment for property measurements.	Lectures and practical training	Oral exams And practical training
3	theoretical=2 Practical=2	**Calculate psychrometric air properties**	Air properties, Dalton laws, psychrometric properties calculations, sp. humidity, REL humidity, enthalpy, pressure and Temp.	Lectures and practical training	Oral exams And practical training
4	theoretical=2 Practical=2	**Interpret psychrometric chart accurately**	Psychometric chart.	Lectures and practical training	Oral exams And practical training
5-6	theoretical=2 Practical=2	**Apply chart for processes**	Psychometric chart using, for mixing process, Sen. Heating and cooling, lat. Heating and cooling, humidification and dehumidification, steam injection.	Lectures and practical training	Oral exams And practical training

7-8	theoretical=2 Practical=2	**Analyze air-conditioning practical processes**	Actual air conditioning process, air- mixing and cooling with dehumidification with and without re heat coils, humidification of air and heating with reheat coils.	Lectures and practical training	Oral exams And practical training
9-10	theoretical=2 Practical=2	**Evaluate thermal comfort parameters**	Sensible heat factor, by- bass factor, contact factor, humidification efficiency, thermal comfort requirements in space.	Lectures and practical training	Oral exams And practical training
11	theoretical=2 Practical=2	**Understand refrigeration heat transfer**	Principle of refrigeration, method of heat transfer, sp. heat, pressure and critical pressure, temp. and critical temp., phase change	Lectures and practical training	Oral exams And practical training
12-14	theoretical=2 Practical=2	**Compare refrigeration system types**	Refrigeration method, natural and industrial system, vapor- compression system, absorption system, steam- jet system, thermo electric system, liquefaction of gases system, air- system in air-craft and others	Lectures and practical training	Oral exams And practical training
15	theoretical=2 Practical=2	**Use pressure enthalpy charts**	Pressure –enthalpy chart, for common refrigerant	Lectures and practical training	Oral exams And practical training
16-17	theoretical=2 Practical=2	**Calculate vapor compression parameters**	Vapor-compression system, theoretical calculation (heat added, heat rejected, work compressor, cop., quantity of refrigerant)	Lectures and practical training	Oral exams And practical training
18-19	theoretical=2 Practical=2	**Analyze vapor compression deviations**	Actual vapor compression system, the effect of vapor super-heated in suction line, sub-cooled in liquid line, pressure drop (pressure losses and heat exchanger on c.o.p.	Lectures and practical training	Oral exams And practical training
20-22	theoretical=2 Practical=2	**Classify compressors and operations**	Compressor, classification, working principles, types, (reciprocating, rotary, center fugal, screw, and another types), construction, secondary types, type of refrigerant using, advantage and disadvantage for each type.	Lectures and practical training	Oral exams And practical training
23-24	theoretical=2 Practical=2	**Evaluate condenser cooling tower**	Condensers and cooling tower, classification condenser (air- cooled, water cooled, evaporative), advantages and disadvantages for each type, classification of cooling tower.	Lectures and practical training	Oral exams And practical training
25-26	theoretical=2 Practical=2	**Identify expansion device types**	Expansion devices types, (manual device, automatic valve, thermostatic valve, low and high side float valve, capillary tubes, advantages and disadvantages for each type.	Lectures and practical training	Oral exams And practical training
27-28	theoretical=2 Practical=2	**Analyze evaporator types efficiency**	Evaporators types- (natural and forced convection), (floated and dry expansion) advantages and disadvantages for each type.	Lectures and practical training	Oral exams And practical training
29-30	theoretical=2 Practical=2	**Select proper refrigerant properties**	Refrigerant, classification, (main and secondary) required prosperities, selection of refrigerant.	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Fluids book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1.Course Name	**Electrical Technology**
2. Course Code:	**MPT-103-24-YM**
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date:	**4 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Zena Salah Hassan	Email: zena@atu.edu.iq
8. Course Objectives	
Course Objectives	**The course aims to provide the student with the scientific and practical foundations of electrical and machinery technology, which he will actually use when practicing his specialty.**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical=2 Practical=2	**Understand basic electronic principles**	Introduction to electron technology, definitions, amperes, current, voltage, resistance, ohms.	Lectures and practical training	Oral exams and practical training
2	Theoretical=2 Practical=2	**Analyze parallel and mutual circuits**	Electronic parallelism and energy, mutual circuit, mixed circuit	Lectures and practical training	Oral exams and practical training
3	Theoretical=2 Practical=2	**Solve mixed electronic circuits**	Electronic parallelism and energy, mutual circuit, mixed circuit	Lectures and practical training	Oral exams and practical training
4	Theoretical=2 Practical=2	**Apply Kirchhoff's laws accurately**	Kirchhoff's Law, ohms, applications	Lectures and practical training	Oral exams and practical training
5	Theoretical=2 Practical=2	**Solve Kirchhoff's circuit problems**	Kirchhoff's Law, ohms, applications	Lectures and practical training	Oral exams and practical training
6	Theoretical=2 Practical=2	**Understand magnetic field principles**	Principles of electronic magnets, magnetic field, magnetic force, magnetic density.	Lectures and practical training	Oral exams and practical training
7	Theoretical=2 Practical=2	**Analyze electromagnetism**	Electronic magnetism	Lectures and practical training	Oral exams and practical training

		phenomena effectively			
8	Theoretical=2 Practical=2	**Explain AC generation principles**	Alternating current, alternating current generation and voltage characteristics, EMF, EMI wave formation, example.	Lectures and practical training	Oral exams and practical training
9	Theoretical=2 Practical=2	**Calculate AC characteristics practically**	Alternating current, alternating current generation and voltage characteristics, EMF, EMI wave formation, example.	Lectures and practical training	Oral exams and practical training
10	Theoretical=2 Practical=2	**Analyze single-phase AC circuits**	Single-phase alternating current resistance circuit, coil circuit, capacitor circuit, phase diagram, phase angle.	Lectures and practical training	Oral exams and practical training
11	Theoretical=2 Practical=2	**Calculate circuit power efficiently**	Resistance file of circuit contents, capacitors connected in series, power calculations, power factor, modified power methods, trend diagrams.	Lectures and practical training	Oral exams and practical training
12	Theoretical=2 Practical=2	**Solve series-parallel power problems**	Resistance file of circuit contents, capacitors connected in series, power calculations, power factor, modified power methods, trend diagrams.	Lectures and practical training	Oral exams and practical training
13	Theoretical=2 Practical=2	**Understand three-phase AC connections**	Three-phase alternating current, generation, wiring and connection methods, star, delta, voltage lines, current lines, phase diagrams, current, voltage and power.	Lectures and practical training	Oral exams and practical training
14	Theoretical=2 Practical=2	**Analyze three-phase voltage-current relationships**	Three-phase alternating current, generation, wiring and connection methods, star, delta, voltage lines, current lines, phase diagrams, current, voltage and power.	Lectures and practical training	Oral exams and practical training
15	Theoretical=2 Practical=2	**Evaluate transformer performance effectively**	Electrical transformer, methods and types of work, construction, applications, losses in the transformer, transformer testing, transformer efficiency, automatic transformer	Lectures and practical training	Oral exams and practical training
16	Theoretical=2 Practical=2	**Test transformer efficiency accurately**	Electrical transformer, methods and types of work, construction, applications, losses in the transformer, transformer testing, transformer efficiency, automatic transformer	Lectures and practical training	Oral exams and practical training
17	Theoretical=2 Practical=2	**Understand voltage law distribution**	Distribution of electronic energy (voltage law).	Lectures and practical training	Oral exams and practical training
18	Theoretical=2 Practical=2	**Convert solar energy electrically**	Converting solar energy into electricity.	Lectures and practical training	Oral exams and practical training
19	Theoretical=2 Practical=2	**Understand DC motor operation**	DC motors, their components, working principles, types of applications, types of starting, losses, power calculations	Lectures and practical training	Oral exams and practical training
20	Theoretical=2 Practical=2	**Calculate DC motor parameters**	DC motors, their components, working principles, types of applications, types of starting, losses, power calculations	Lectures and practical training	Oral exams and practical training
21	Theoretical=2 Practical=2	**Analyze AC motor performance**	Alternating current motors, their components, working principles, types of applications, single phase - three phases, types of starting, speed control.	Lectures and practical training	Oral exams and practical training
22	Theoretical=2 Practical=2	**Implement motor protection devices**	Motor protection, current protection devices, overload, temperature, surge protection	Lectures and practical training	Oral exams and practical training
23	Theoretical=2 Practical=2	**Perform engine tests effectively**	Engine testing, engine maintenance and parts repair	Lectures and practical training	Oral exams and practical training
24	Theoretical=2 Practical=2	**Understand electronic fundamentals clearly**	Introduction to electron technology, definitions, amperes, current, voltage, resistance, ohms.	Lectures and practical training	Oral exams and practical training

25	Theoretical=2 Practical=2	**Analyze mutual circuit behavior**	Electronic parallelism and energy, mutual circuit, mixed circuit	Lectures and practical training	Oral exams and practical training
26	Theoretical=2 Practical=2	**Solve complex electronic circuits**	Electronic parallelism and energy, mutual circuit, mixed circuit	Lectures and practical training	Oral exams and practical training
27	Theoretical=2 Practical=2	**Apply Kirchhoff's laws correctly**	Kirchhoff's Law, ohms, applications	Lectures and practical training	Oral exams and practical training
28	Theoretical=2 Practical=2	**Solve practical circuit examples**	Kirchhoff's Law, ohms, applications	Lectures and practical training	Oral exams and practical training
29	Theoretical=2 Practical=2	**Evaluate magnetic density properties**	Principles of electronic magnets, magnetic field, magnetic force, magnetic density.	Lectures and practical training	Oral exams and practical training
30	Theoretical=2 Practical=2	**Demonstrate electromagnetic field principles**	Electronic magnetism	Lectures and practical training	Oral exams and practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Electricity technology book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Stage 2: -

Course Description Form

1. Course Name:	**Drawing of refrigeration and conditioning systems**
2. Course Code: :	MPT-206-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**4 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Sarah Salim Hasan	Email: sara.hassan.iba101@atu.edu.iq
8. Course Objectives	
Course Objectives	Provide the student with experience and skills to enable him to read and draw architectural plans and air duct maps
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Practical=3	**Draw multi-story building plans**	Drawing an architectural plan for a multi-story building	Lectures and practical training	Oral exams And practical training
2	Practical=3	**Understand single-line duct layout**	A general idea of drawing air ducts in the single line style	Lectures and practical training	Oral exams And practical training
3	Practical=3	**Draw duct with dimensions**	Draw an air duct with two lines indicating the dimensions	Lectures and practical training	Oral exams And practical training
4-5	Practical=3	**Design full ductwork systems**	Draw a complete air duct diagram (containing bend, T-branch, and other connections) with the dimensions indicated on it	Lectures and practical training	Oral exams And practical training

6	Practical=3	**Integrate ducts with devices**	Draw complete ductwork diagram with connection to hoist device or air exchange unit	Lectures and practical training	Oral exams And practical training
7	Practical=3	**Include distributors and dimensions**	Drawing a complete diagram of the air ducts with details of the drawing of the windows and air distributors... in their locations, with dimensions and air quantities indicated on them.	Lectures and practical training	Oral exams And practical training
8-9	Practical=3	**Draw cooling and heating pipes**	A general idea of drawing water pipes for air conditioning units (cooling water system - heating water system - condensing water system)	Lectures and practical training	Oral exams And practical training
10-11	Practical=3	**Design multi-door duct network**	Drawing paintings for the coil and fan duct network with single - double - triple - quadruple doors	Lectures and practical training	Oral exams And practical training
12	Practical=3	**Draw integrated riser systems**	Drawing of the double riser tube within an integrated cooling system	Lectures and practical training	Oral exams And practical training
13	Practical=3	**Include control and measuring devices**	Drawing a diagram of an integrated pipeline network, including control and measuring devices	Lectures and practical training	Oral exams And practical training
14	Practical=3	**Draw machine room piping layout**	Machine room layout drawing (single line and two piping lines)	Lectures and practical training	Oral exams And practical training
15	Practical=3	**Illustrate pipe movement spatially**	Drawing sections of the machine room to illustrate the movement of the pipe within the space of the room	Lectures and practical training	Oral exams And practical training
16	Practical=3	**Connect coil and fan units**	Drawing an architectural map of a single floor - showing how to connect the coil and fan units	Lectures and practical training	Oral exams And practical training
17	Practical=3	**Connect machine to engine room**	Draw a diagram of the cooling water pipes connecting the machine room to the engine room on a specific floor	Lectures and practical training	Oral exams And practical training
18-19	Practical=3	**Draw 3D water systems**	A three-dimensional drawing of the cooling, condensing and charging water system with valves and control devices installed	Lectures and practical training	Oral exams And practical training
20-21 22-23 24-25	Practical=3	**Illustrate control devices installation**	Drawing a diagram of the control systems for a condensing unit - an air exchanger unit, a home cooling panel... a separate cooling panel	Lectures and practical training	Oral exams And practical training
26-27 28-29-30	Practical=3	**Draw supports and pipe bases**	Drawing supports and pipe fasteners, device supports, pump bases - with a scientific visit to one of the buildings to see the implementation of air ducts - and extending the water pipe network.	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed

1- 15 marks for practical. for the first semester

2- 15 marks for practical. for the second semester

3 - 10 marks for student activities

4 - 60 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Refrigeration systems drawing book
Main references (sources)	Methodical books related to industrial drawing
Recommended books and references (scientific journals, reports)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Air-conditioner**
2. Course Code:	MPT-201-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**4 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Ahmed Kareem Kazem	Email: ahmed.kadhom.iba102@atu.edu.iq

8. Course Objectives

Course Objectives	Introducing the student to a detailed study of the basics of air conditioning and calculating thermal loads in cooling and heating systems, a study of different air conditioning groups and the basics of designing air ducts and pipes, in addition to the topics of noise and air purification.

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical=2 Practical=2	**Analyze conduction and convection**	Heat transfer – heat transfer by conduction – heat transfer coefficient, heat transfer by convection	Lectures and practical training	Oral exams And practical training
2	Theoretical=2 Practical=2	**Calculate radiation and walls**	Heat transfer by radiation, heat transfer through walls and composite walls, total Heat transfer coefficient	Lectures and practical training	Oral exams And practical training
3	Theoretical=2 Practical=2	**Evaluate air movement comfort**	Air- condition and feeling comfortable, Air movement, relative humidity wet and bulb temperature	Lectures and practical training	Oral exams And practical training
4	Theoretical=2 Practical=2	**Compute heating load losses**	Heating load, calculation of heating load losses	Lectures and practical training	Oral exams And practical training
5 – 7	Theoretical=2 Practical=2	**Determine cooling load parameters**	Cooling load Parameters & Calculations	Lectures and practical training	Oral exams And practical training

8	Theoretical=2 Practical=2	**Design heating cooling systems**	Heating & Cooling systems	Lectures and practical training	Oral exams And practical training
9	Theoretical=2 Practical=2	**Interpret psychrometric chart data**	Psychometric chart, sensible and latent heat, configuration of air leaving the heating & cooling coil	Lectures and practical training	Oral exams And practical training
10	Theoretical=2 Practical=2	**Perform computer cooling calculations**	Computer-aided calculation of cooling load.	Lectures and practical training	Oral exams And practical training
11 – 14	Theoretical=2 Practical=2	**Design ducts including fittings**	Air ducting design, Kinds & pressure losses calculation included fittings	Lectures and practical training	Oral exams And practical training
15	Theoretical=2 Practical=2	**Analyze room air distribution**	Movement energy, air discharge in rooms	Lectures and practical training	Oral exams And practical training
16 – 17	Theoretical=2 Practical=2	**Evaluate fan performance specifications**	Fans, fan laws, specification	Lectures and practical training	Oral exams And practical training
18	Theoretical=2 Practical=2	**Identify and analyze vibrations**	Vibration and vibration sources	Lectures and practical training	Oral exams And practical training
19 – 21	Theoretical=2 Practical=2	**Design piping and pumps**	Piping design, types and Pumps calculation	Lectures and practical training	Oral exams And practical training
22 – 25	Theoretical=2 Practical=2	**Compare air water systems**	Types of air condoning system & Air and water system	Lectures and practical training	Oral exams And practical training
26 – 27	Theoretical=2 Practical=2	**Implement systems in buildings**	Application of air condoning systems in building	Lectures and practical training	Oral exams And practical training
28	Theoretical=2 Practical=2	**Assess air filtration methods**	Air filtration methods	Lectures and practical training	Oral exams And practical training
29	Theoretical=2 Practical=2	**Evaluate air washer efficiency**	Air Washers	Lectures and practical training	Oral exams And practical training
30	Theoretical=2 Practical=2	**Analyze HVAC energy distribution**	Energy distribution in air condoning system	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Principles of air conditioning and refrigeration engineering - Khaled Al-Judi
Main references (sources)	Applied Air – conditioning and refrigeration by C.T Gosling
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Refrigeration Systems**
2. Course Code:	MPT-202-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**4 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Sarah Yahya Hatem	Email: sarah.assad@atu.edu.iq

8. Course Objectives

Course Objectives	Introducing the student to the systems used in the field of freezing and understanding their theoretical basis... and studying the actual compression system, choosing pipes and balancing parts.

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
(2-1)	Theoretical=2 Practical=2	**Analyze compression refrigeration systems**	Compression refrigeration system (theory and practice) and media quality	Lectures and practical training	Oral exams And practical training
(5-3)	Theoretical=2 Practical=2	**Select components for refrigeration**	Selection of compression system parts / evaporator - condenser - compressor - condensing unit - group balance	Lectures and practical training	Oral exams And practical training
(8-6)	Theoretical=2 Practical=2	**Design multi-compressor refrigeration**	Complex compression system - multi-compressor {presence of interchanger - presence of flash tank} or multi-evaporator	Lectures and practical training	Oral exams And practical training
(10-9)	Theoretical=2 Practical=2	**Plan and extend piping**	General considerations for designing and extending the piping network	Lectures and practical training	Oral exams And practical training

			(drain line - liquid line - suction line - water pipes)		
(14-11)	Theoretical=2 Practical=2	**Evaluate refrigeration system accessories**	Compression system accessories / purpose - location	Lectures and practical training	Oral exams And practical training
(16-15)	Theoretical=2 Practical=2	**Apply refrigeration control devices**	Control devices used in refrigeration systems	Lectures and practical training	Oral exams And practical training
(20-17)	Theoretical=2 Practical=2	**Compare absorption compression systems**	Absorption refrigeration system / working principle - advantages - use in the field of refrigeration and condensation / comparison with the compression system - use of solar energy for operation	Lectures and practical training	Oral exams And practical training
(22-21)	Theoretical=2 Practical=2	**Analyze vapor jet systems**	Vapor jet refrigeration system	Lectures and practical training	Oral exams And practical training
(25-23)	Theoretical=2 Practical=2	**Evaluate air refrigeration types**	Air refrigeration system - advantages - types	Lectures and practical training	Oral exams And practical training
(27-26	Theoretical=2 Practical=2	**Examine air liquefaction systems**	Air liquefaction refrigeration system . advantages - types	Lectures and practical training	Oral exams And practical training
28	Theoretical=2 Practical=2	**Assess thermoelectric refrigeration methods**	Thermoelectric refrigeration system	Lectures and practical training	Oral exams And practical training
(30-29)	Theoretical=2 Practical=2	**Design cold storage facilities**	Food preservation technology - Cold store designs - Calculating store loads - Types of stores	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Principles of air conditioning and refrigeration engineering - Khaled Al-Judi
Main references (sources)	Applied Air – conditioning and refrigeration by C.T Gosling
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Heat transfer**
2. Course Code:	MPT-203-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**4 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Ahmed Kareem Kazem	Email: ahmed.kadhom.iba102@atu.edu.iq

8. Course Objectives

Course Objectives	The aim of studying heat transfer is to enable the student to know the main general foundations of heat transfer and its practical applications in the field of air conditioning, such as finding the thermal load of a building, as well as finding the thermal conductivity, thickness and type of insulation used in air conditioning system pipes and heat exchangers of all types and their uses in cooling.

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical=2 Practical=1	**Understand basic heat principles**	Basic principles and importance of heat transfer.	Lectures and Practical training	Oral exams And practical training
2	Theoretical=2 Practical=1	**Differentiate conduction convection radiation**	The three kinds of heat transfer , conduction heat transfer, convection heat transfer , radiation heat transfer, examples	Lectures and Practical training	Oral exams And practical training
3	Theoretical=2 Practical=1	**Analyze steady-state plane conduction**	Conduction of heat transfer in the steady state conduction through a homogeneous plans wall	Lectures and Practical training	Oral exams And practical training
4	Theoretical=2 Practical=1	**Evaluate composite wall conduction**	Conduction through a composite plans wall, heat resistance . conduction through a homogeneous cylinder wall	Lectures and Practical training	Oral exams And practical training
5	Theoretical=2 Practical=1	**Assess variable conductivity effects**	Conduction through a composite cylinder wall , influence of variable conductivity , examples	Lectures and Practical training	Oral exams And practical training

6	Theoretical=2 Practical=1	**Apply convection dimensionless parameters**	Heat transfer by convection , Reynolds concept of similarity of the flow of fluids and the viscosity , the most important dimensionless groups, examples	Lectures and Practical training	Oral exams And practical training
7	Theoretical=2 Practical=1	**Analyze free convection surfaces**	Heat transfer by free convection , heat transfer from vertical and horizontal surfaces , examples	Lectures and Practical training	Oral exams And practical training
8-9	Theoretical=2 Practical=1	**Evaluate air water convection**	Heat transfer by free convection from horizontal square plates , heat transfer proportion of air at atmospheric pressure and properties of water . examples	Lectures and Practical training	Oral exams And practical training
10	Theoretical=2 Practical=1	**Analyze forced convection flows**	Heat transfer by forced convection , the heating of fluids in turbulent flow through pipes , examples	Lectures and Practical training	Oral exams And practical training
11	Theoretical=2 Practical=1	**Examine flow heat interactions**	The heating of fluids flowing normal to single wires and tubes the heating of fluids flowing normal to tube banks , examples	Lectures and Practical training	Oral exams And practical training
12-13	Theoretical=2 Practical=1	**Calculate combined heat transfer**	Heat transfer by the combined effect of conduction and convection, heat transfer between two fluids through a plane wall, heat transfer between two fluids through a cylinder wall, examples	Lectures and Practical training	Oral exams And practical training
14-15	Theoretical=2 Practical=1	**Compare heat exchanger types**	Types of heat exchangers, the log mean temperature difference, examples	Lectures and Practical training	Oral exams And practical training
16-17	Theoretical=2 Practical=1	**Evaluate exchanger effectiveness ratio**	Heat exchanger effectiveness ratio , examples	Lectures and Practical training	Oral exams And practical training
18	Theoretical=2 Practical=1	**Analyze fins condensation boiling**	Heat transfer through fins , condensation and boiling heat transfer	Lectures and Practical training	Oral exams And practical training
19	Theoretical=2 Practical=1	**Understand radiation heat transfer**	Heat transfer by radiation , the concept of a perfect black body	Lectures and Practical training	Oral exams And practical training
20	Theoretical=2 Practical=1	**Apply Stefan-Boltzmann law**	Stefan – Boltzmann's law of total radiation , general equation for heat exchange by radiation between black surfaces , examples	Lectures and Practical training	Oral exams And practical training
21-22-23	Theoretical=2 Practical=1	**Calculate plane radiation exchange**	Heat exchange by radiation between large parallel black plane , examples	Lectures and Practical training	Oral exams And practical training
24-25-26	Theoretical=2 Practical=1	**Analyze emissivity radiation effects**	Heat exchange by radiation between large parallel planes of different emissivity , examples	Lectures and Practical training	Oral exams And practical training
27-28	Theoretical=2 Practical=1	**Assess series heat transfer**	Heat conduction in series with convection and radiation, examples	Lectures and Practical training	Oral exams And practical training
29	Theoretical=2 Practical=1	**Evaluate air space conduction**	Heat transfer through air space , examples	Lectures and Practical training	Oral exams And practical training
30	Theoretical=2 Practical=1	**Solve applied heat problems**	General problems , home works	Lectures and Practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Elements of heat transfer, Obert McGrow – Hill – 1984
Main references (sources)	Heat and mass transfer Jakob and Hawking John Wiley & Sons, Inc. 1957
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Control system devices**
2. Course Code:	MPT-204-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**4 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Sarah Yahya Hatem	Email: sarah.assad@atu.edu.iq

8. Course Objectives

Course Objectives	Introducing the student to the basic principles that operate in control and command systems in general, and specifically those used in the field of controlling the operation of air conditioning and refrigeration systems.

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical=2 Practical=1	**Understand basic control principles**	Principles of control . and general definitions of the most important terms used in control	Lectures and practical training	Oral exams And practical training
2	Theoretical=2 Practical=1	**Differentiate control system types**	Principles of control - Types of control	Lectures and practical training	Oral exams And practical training
3	Theoretical=2 Practical=1	**Analyze measurement control factors**	Principles of measurement - measurement - control and measurement - the most important factors subject to control	Lectures and practical training	Oral exams And practical training
4	Theoretical=2 Practical=1	**Operate sensing measurement devices**	Measuring and sensing devices for various factors in refrigeration and air conditioning devices {liquid level - pressure - temperature - humidity}	Lectures and practical training	Oral exams And practical training
5	Theoretical=2 Practical=1	**Interpret electrical control diagrams**	Electrical control circuits / electrical control balance - diagrams of electrical circuits and control	Lectures and practical training	Oral exams And practical training
7-6	Theoretical=2 Practical=1	**Identify electrical control elements**	Electrical control elements, thermostat - circuit breaker for overload protection,	Lectures and practical training	Oral exams And practical training

			humidity regulators, pressure regulators, final control elements, conductors.		
8	Theoretical=2 Practical=1	**Apply electronic control elements**	Electronic control circuits - Control circuit elements, thermostat, humidity regulator	Lectures and practical training	Oral exams And practical training
-11-10-9 12	Theoretical=2 Practical=1	**Understand air control components**	Air control circuits, control components, control elements, thermostat, humidity regulator, pressure regulator, control elements, gate motor, air valves, air relays, compressed air preparation equipment	Lectures and practical training	Oral exams And practical training
14-13	Theoretical=2 Practical=1	**Analyze refrigeration control systems**	Components of the control system for refrigeration machines - dynamic properties	Lectures and practical training	Oral exams And practical training
-16-15 -18-17 19	Theoretical=2 Practical=1	**Control cooling system capacity**	Methods of controlling cooling capacity - Controlling cooling capacity through the operation of the evaporator - Controlling cooling capacity through the operation of centrifugal compressors and controlling cooling capacity using thermal expansion valve, controlling capacity using the float in centrifugal devices	Lectures and practical training	Oral exams And practical training
20	Theoretical=2 Practical=1	**Apply control in practice**	Practical applications on control devices for clean rooms - white rooms - computer rooms - hospitals	Lectures and practical training	Oral exams And practical training
-22-21 -24-23 26-25	Theoretical=2 Practical=1	**Manage home AC control**	Control systems for home units - Control circuits for wall air conditioners, home freezers - separate devices, multiple zones (control devices for the device or multiple zones) - central air conditioning device	Lectures and practical training	Oral exams And practical training
27	Theoretical=2 Practical=1	**Operate central cooling systems**	Components of the control system for the central cooling system and the most important methods used to control temperature and humidity	Lectures and practical training	Oral exams And practical training
28	Theoretical=2 Practical=1	**Implement year-round AC control**	Control system for the air conditioning system that operates throughout the year	Lectures and practical training	Oral exams And practical training
29	Theoretical=2 Practical=1	**Control central heating devices**	Control system for central heating devices	Lectures and practical training	Oral exams And practical training
30	Theoretical=2 Practical=1	**Design detailed control diagrams**	Developing a detailed control map for central cooling and air conditioning devices	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Engineering Measurement & instrumentation by L. F. Adams
Main references (sources)	Control systems for heating & ventilation and air-condition, by Haines
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Air conditioning and refrigeration maintenance**
2. Course Code: :	MPT-205-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**4 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
6. Number of Credit Hours (Total) / Number of Units (Total):	**180 Hours / 12 Units**
7. Course administrator's name (mention all, if more than one name)	
Name: Ali Assim Abd Al-Razak	Email: ali.nit2009@atu.edu.iq
8. Course Objectives	
Course Objectives	Teaching the student and providing him with the necessary skills and experience to maintain and operate air conditioning and refrigeration equipment.
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical=2 Practical=4	**Understand AC maintenance concepts**	A general idea about refrigeration and air conditioning devices and about device maintenance - and types of maintenance.	Lectures and practical training	Oral exams And practical training
2	Theoretical=2 Practical=4	**Diagnose mechanical system faults**	The mechanical circuit of the compression refrigeration system. Maintenance of each part. Expected malfunctions for each part - as well as malfunctions of auxiliary parts.	Lectures and practical training	Oral exams And practical training
3	Theoretical=2 Practical=4	**Identify faults externally**	Using the external inspection method - to identify mechanical and electrical faults	Lectures and practical training	Oral exams And practical training
4	Theoretical=2 Practical=4	**Maintain home refrigeration units**	Maintenance of home refrigeration appliances (refrigerator - freezer - water cooler) Mechanical circuit	Lectures and practical training	Oral exams And practical training
5	Theoretical=2 Practical=4	**Diagnose electrical faults effectively**	Study of the electrical circuit - and identification of faults - causes and treatment for the home group	Lectures and practical training	Oral exams And practical training
6	Theoretical=2 Practical=4	**Perform cycle part replacement**	Replacement of cycle parts - charging - discharging - adding oil - checking for leakage	Lectures and practical training	Oral exams And practical training

8-7	Theoretical=2 Practical=4	**Maintain wall-mounted AC units**	Maintenance of the wall-mounted room air conditioning unit (regular cycle and reverse cycle air conditioning unit) with replacement of parts (mechanical and electrical cycle)	Lectures and practical training	Oral exams And practical training
9	Theoretical=2 Practical=4	**Inspect reciprocating compressors thoroughly**	Reciprocating compressor - compressor inspection - compressor faults - treatment - compressor parts maintenance - seat replacement - leakage fluids - valve maintenance	Lectures and practical training	Oral exams And practical training
10	Theoretical=2 Practical=4	**Maintain vehicle AC systems**	Car air conditioning unit maintenance - parts description - device operation selection - discharging and charging - parts replacement - faults - treatment	Lectures and practical training	Oral exams And practical training
12-11	Theoretical=2 Practical=4	**Maintain various AC units**	Separate and integrated air conditioning unit maintenance - device installation - device description - types of air or water-cooled devices . Parts maintenance . Compressor - condenser - evaporator - filter - fans and rotating shafts	Lectures and practical training	Oral exams And practical training
13-14	Theoretical=2 Practical=4	**Manage refrigerant and oil**	Discharging and charging - oil change - compressor replacement - checking control devices and electrical control panel and fault identification table	Lectures and practical training	Oral exams And practical training
15-16	Theoretical=2 Practical=4	**Maintain commercial refrigeration units**	Commercial refrigeration unit maintenance - unit types - unit installation - Unloading, charging and leakage checking - Inspection and replacement of parts	Lectures and practical training	Oral exams And practical training
17	Theoretical=2 Practical=4	**Maintain central AC systems**	Maintenance of central air conditioning unit with reciprocating and centrifugal compressors in the following cases - Two compressors for two separate cycles - With two or more compressors for a combined cycle	Lectures and practical training	Oral exams And practical training
18	Theoretical=2 Practical=4	**Maintain air handling components**	Maintenance of air exchangers - Fans - Heating and cooling coils - Filters of all kinds.	Lectures and practical training	Oral exams And practical training
19	Theoretical=2 Practical=4	**Maintain air control devices**	Air mixing box with gates – Humidifier – Electric heater with control valves	Lectures and practical training	Oral exams And practical training
20	Theoretical=2 Practical=4	**Clean and maintain coils**	Maintenance of the coil and fan unit (system description, coil line maintenance and cleaning of coils and filter from dirt left by air on the network)	Lectures and practical training	Oral exams And practical training
21	Theoretical=2 Practical=4	**Operate control system panels**	Control group and how to connect it to the electrical control panel	Lectures and practical training	Oral exams And practical training
22	Theoretical=2 Practical=4	**Perform central AC inspections**	Maintenance of central air conditioning unit parts – Checking the compressor oil with maintenance of service valves and washing the condenser with chemicals, cleaning the evaporator, regulating the expansion valve, checking and regulating pressure controllers (high- and low-pressure controller and oil)	Lectures and practical training	Oral exams And practical training
23	Theoretical=2 Practical=4	**Replace parts and troubleshoot**	Replacing device parts – Discharging and charging cycle and checking for leakage (fault identification list)	Lectures and practical training	Oral exams And practical training

24	Theoretical=2 Practical=4	**Maintain cooling tower components**	Maintenance of the cooling tower (types) Maintenance of the tower body and basin, float, filling and fan and motor, gearbox (if any), adjusting the alignment of the axles	Lectures and practical training	Oral exams And practical training
25	Theoretical=2 Practical=4	**Maintain water pumps effectively**	Description of the different types of water pumps, maintenance of the motor and valves	Lectures and practical training	Oral exams And practical training
26	Theoretical=2 Practical=4	**Align and repair pumps**	Adjusting the alignment of the motor and pump axle – Types of water leakage seal, repair or replacement – Replacing the pump, pipes and accessories	Lectures and practical training	Oral exams And practical training
27	Theoretical=2 Practical=4	**Maintain electrical AC components**	Maintenance of electrical parts	Lectures and practical training	Oral exams And practical training
28	Theoretical=2 Practical=4	**Perform boiler inspections**	Maintenance of the boiler – Cleaning the boiler body from the inside and outside – Dismantling the motor and its accessories and maintenance Its various parts. Reassembling it on the boiler body.	Lectures and practical training	Oral exams And practical training
29	Theoretical=2 Practical=4	**Operate and check boilers**	Preparing the boiler in terms of preparing water and checking the electrical components, then operating it with re-checking its control systems.	Lectures and practical training	Oral exams And practical training
30	Theoretical=2 Practical=4	**Read and maintain panels**	Maintenance and reading of electrical panels for central air conditioning units	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Engineering Measurement & instrumentation by L. F. Adams
Main references (sources)	Control systems for heating & ventilation and air-condition , by Haines
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Stage 1 :- For all branches

Course Description Form

1. Course Name	**Computer and Artificial Intelligence**
2. Course Code	**ATU12-24-YM**
3. Semester / Year	Annual Course/ First Stage
4. Description Preparation Date	**1 / 12 / 2025**
5. Available Attendance Forms	Attendance In-person
6. Number of Credit Hours (Total) / Number of Units (Total):	**60 Hours / 2 Units**
7. Course administrator's name (mention all, if more than one name)	
Name: Alaa Majeed shnin	Email: alaa.shnen.iba@atu.edu.iq
8. Course Objectives	
Course Objectives	**Teaching the students about the computer and some applications.**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical=1 Practical=1	**Understand computer basic concepts**	Computer Definition, Software, Hardware, Computer Generations.	Lectures and practical training	Oral exams And practical training
2	Theoretical=1 Practical=1	**Explain MS-DOS fundamentals clearly**	MS-DOS Operating System, Definition, Internal commands , External commands	Lectures and practical training	Oral exams And practical training
3-12	Theoretical=1 Practical=1	**Distinguish internal external commands**	Internal commands: Dir , Del , Time , Date , Cls , RD, CD, MD,	Lectures and practical training	Oral exams And practical training

			Echo, Prompt, Ren < copy , vol, ver , path . External Commands: Edit , tree , xcopy , format , chkdsk, diskcopy		
13-27	Theoretical=1 Practical=1	**Execute DOS commands effectively**	Operating System Windows: Desktop, Icons, Taskbar, Start, Shutdown, My computer, Control Panel, Windows media player , Calculator , Paint , Note Pad, Help	Lectures and practical training	Oral exams And practical training
28-30	Theoretical=1 Practical=1	**Operate Windows OS efficiently**	Computer Viruses, Antivirus.	Lectures and practical training	Oral exams And practical training

11.Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Computer and its Applications
Main references (sources)	Currently available methodical boo
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Mechanics lab**
2. Course Code:	**MPT-105-24-YM**
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person

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: - /	Email: - /

8. Course Objectives

Course Objectives	**Gaining manual and craft skills for the student when performing work and manufacturing using various numbers and tools.**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
3-2-1	Practical=4	**Understand basic plumbing principles**	Plumbing - The importance of plumbing - Safety precautions in the workshop - Sand - Its types	Lectures and practical training	Oral exams And practical training
6-5-4	Practical=4	**Perform metal casting accurately**	Forming the sand mold for a one-piece model - Melting the metal and pouring it into the mold - Molds for a two-piece model or more with assembling the cast models	Lectures and practical training	Oral exams And practical training
9-8-7	Practical=4	**Differentiate mold types effectively**	Other types such as the rotating one - the fixed mold	Lectures and practical training	Oral exams And practical training
-11-10 12	Practical=4	**Analyze casting defects critically**	Studying castings to identify defects and know their causes	Lectures and practical training	Oral exams And practical training
-14-13 15	Practical=4	**Apply proper filing techniques**	The importance of filings - Safety precautions in the workshop - Types of	Lectures and practical training	Oral exams And practical training

			files used and according to the metals and shapes required		
16	Practical=4	**Produce precise filed surfaces**	Filing exercises to obtain a good surface . and a good angle - and filing some shapes	Lectures and practical training	Oral exams And practical training
17	Practical=4	**Operate lathe machines safely**	Lathe - Parts of the lathe - Measuring equipment - Different lathe operations - External surface lathe - Internal - Straight or stripped lathe - Knowing how to change the speed of the lathe with introducing the student to the necessary safety precautions inside the workshop	Lectures and practical training	Oral exams And practical training
-19-18 21-20	Practical=4	**Perform basic carpentry operations**	Carpentry - Types of wood - Types of tools used and how to use tools from cutting, filing, drilling and shaping	Lectures and practical training	Oral exams And practical training
22	Practical=4	**Execute welding processes accurately**	Studying welding - The importance of welding - The necessary safety rules in welding workshops - Types of welding methods - and their relationship to the metal required to be welded with the implementation of several forms of welding	Lectures and practical training	Oral exams And practical training
24-23	Practical=4	**Handle refrigeration piping properly**	Pipes used in the field of refrigeration - With welding and cutting exercises with the use of tools in this field	Lectures and practical training	Oral exams And practical training
25	Practical=4	**Connect pipes using tools**	Expanding and splicing pipes / Studying the tools used in the field of expanding the pipe in preparation for connecting the two pipes to each other with the use of tools specific to this field	Lectures and practical training	Oral exams And practical training
256	Practical=4	**Perform various metal welds**	Gas welding - Parts of the welding system - Copper welding - Silver and brass with an experience of welding two pieces of pipe - Aluminum welding - Iron and copper welding using brass	Lectures and practical training	Oral exams And practical training
-28-27 30-29	Practical=4	**Understand small refrigeration systems**	Compression cooling system in small refrigeration systems (home refrigerator - freezer - air conditioner)	Lectures and practical training	Oral exams And practical training

11.Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Engineering drawing book
Main references (sources)	Currently available methodical boo
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Rights and democracy**
2. Course Code:	ATU13-24-YM
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms:	Theoretical
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)	
Name: Ali Kamel Hamzah	Email: ali.hamzha@atu.edu.iq
8. Course Objectives	
Course Objectives	**Teaching students the basic concepts of human rights and democra**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Thermotical=2	**Understand fundamental human rights**	Human rights, their definition, and goals The roots of human rights and their development in human history: human rights in ancient and medieval times	Lectures and practical training	Oral exams And practical training
2	Thermotical=2	**Analyze historical human rights**	Human rights in ancient civilizations, especially the Mesopotamian civilization	Lectures and practical training	Oral exams And practical training
3	Thermotical=2	**Evaluate medieval human rights**	Human rights in the Middle Ages: human rights in political doctrines, schools and theories, human rights in companies and their declarations, revolutions and constitutions (English documents, American Revolution, French Revolution, Russian Revolution) Human rights in contemporary and modern history: international recognition of human rights since World War I and the League of Nations	Lectures and practical training	Oral exams And practical training
4	Thermotical=2	**Recognize international human rights**	Regional recognition of human rights: European Convention on Human Rights 1950 American Convention	Lectures and practical training	Oral exams And practical training

			on Human Rights 1969 African Charter on Human Rights 1981 Arab Charter on Human Rights 1994		
5	Thermotical=2	**Compare regional human rights**	Non-governmental organizations and human rights (International Committee of the Red Cross, Amnesty International, Human Rights Watch) National human rights organizations	Lectures and practical training	Oral exams And practical training
6	Thermotical=2	**Assess NGO human rights**	Human rights in Iraqi constitutions between theory and reality	Lectures and practical training	Oral exams And practical training
7	Thermotical=2	**Critically analyze Iraqi rights**	The relationship between human rights and public freedoms: 1- In the Universal Declaration of Human Rights , In regional charters and national constitutions	Lectures and practical training	Oral exams And practical training
8	Thermotical=2	**Correlate rights with freedoms**	Necessary human rights and collective human rights	Lectures and practical training	Oral exams And practical training
9	Thermotical=2	**Differentiate individual and collective**	Economic, social and cultural human rights and civil and political human rights Modern human rights: facts in development, the right to a clean environment, the right to solidarity, the right to religion	Lectures and practical training	Oral exams And practical training
10	Thermotical=2	**Evaluate multidimensional human rights**	Guarantees of respect and protection of human rights at the national level, guarantees in the constitution and laws, guarantees in the principle of the rule of law. Guarantees in constitutional oversight, guarantees in freedom of the press and public opinion, the role of non-governmental organizations in respecting and protecting human rights.	Lectures and practical training	Oral exams And practical training
11	Thermotical=2	**Examine national human rights**	Guarantees, respect and protection of human rights at the international level: - The role of the United Nations and its specialized agencies in providing guarantees - The role of regional organizations (the Arab League, the European Union, the African Union, the Organization of American States, the ASEAN Organization) - The role of international non-governmental organizations and public opinion in respecting and protecting human rights	Lectures and practical training	Oral exams And practical training
12	Thermotical=2	**Analyze international human rights**	The general theory of freedoms: the origin of rights and freedoms, the project's position on declared rights and freedoms, the use of the term general freedoms. The functional nature of the concept of public freedoms: philosophical considerations of the functional right, structural considerations of the positive right, economic considerations and public freedoms.	Lectures and practical training	Oral exams And practical training
13	Thermotical=2	**Assess global human rights**	The legal rule of the state of law, Regulation of public freedoms by public authorities, Non-judicial litigation or grievance, Judicial appeal, determining the state's responsibility for its legitimate actions	Lectures and practical training	Oral exams And practical training
14	Thermotical=2	**Understand theoretical public freedoms**	The impact of double judiciary on public freedoms - Public freedoms under administrative jurisprudence Equality: The historical development of the concept of equality	Lectures and practical training	Oral exams And practical training
15	Thermotical=2	**Apply legal frameworks effectively**	The modern development of the idea of equality - gender equality - Equality between individuals according to their beliefs and race	Lectures and practical training	Oral exams And practical training
16	Thermotical=2	**Evaluate judicial influence critically**	The concept of freedoms, classification of public freedoms Fundamental freedoms, intellectual freedoms, economic and social freedoms	Lectures and practical training	Oral exams And practical training
17	Thermotical=2	**Analyze equality in society**	Freedom, security and feeling of reassurance , Freedom to come and go	Lectures and practical training	Oral exams And practical training
18	Thermotical=2	**Categorize public freedoms accurately**	Intellectual freedoms: freedom of opinion, freedom of belief , Freedom of education	Lectures and practical training	Oral exams And practical training
19	Thermotical=2	**Assess personal security freedoms**	Freedom of the press , Freedom of society	Lectures and practical training	Oral exams And practical training

20	Thermotical=2	**Examine intellectual and educational freedoms**	Anti-sabotage law , Freedom of association	Lectures and practical training	Oral exams And practical training
21	Thermotical=2	**Analyze media and societal freedoms**	Freedoms with economic and social content , Freedom of action	Lectures and practical training	Oral exams And practical training
22	Thermotical=2	**Evaluate legal and association freedoms**	The right to own property	Lectures and practical training	Oral exams And practical training
23	Thermotical=2	**Assess socio-economic freedoms**	Freedom of trade and industry	Lectures and practical training	Oral exams And practical training
24	Thermotical=2	**Understand property rights legally**	women freedom	Lectures and practical training	Oral exams And practical training
25	Thermotical=2	**Analyze commercial freedoms critically**	Political parties and public freedoms	Lectures and practical training	Oral exams And practical training
26	Thermotical=2	**Examine gender equality rights**	Public freedoms in the world	Lectures and practical training	Oral exams And practical training
27	Thermotical=2	**Assess political participation freedoms**	Scientific and technical progress and public freedoms	Lectures and practical training	Oral exams And practical training
28	Thermotical=2	**Compare global public freedoms**	The future of public freedoms	Lectures and practical training	Oral exams And practical training
29	Thermotical=2	**Evaluate tech impact freedoms**	Democracy, its definition, types , Concepts of democracy , Democracy in the Third World	Lectures and practical training	Oral exams And practical training
30	Thermotical=2	**Predict evolution of freedoms**	Democratic systems in the world	Lectures and practical training	Oral exams And practical training

11.Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Systematic human rights book
Main references (sources)	Currently available methodical boo
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name	**Engineering mechanics**
2. Course Code	**MPT-104-24-YM**
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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: Bashar Dhia Hussein	Email: bashar.hussein@atu.edu.iq
8. Course Objectives	
Course Objectives	**Teaching the student about car breakdowns and how to maintain them**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical=2 Practical=1	**Understand fundamental mechanics principles**	Introduction & topics of mechanics , Definition of mechanics science & the branches basic quantities & units , Applications by using mechanics in the life	Lectures and practical training	Oral exams And practical training
2-3	Theoretical=2 Practical=1	**Analyze vector forces accurately**	Force , resolution and resultant . vectors analytic + applications	Lectures and practical training	Oral exams And practical training
4-5-6-7	Theoretical=2 Practical=1	**Calculate moments and couples**	Moment of the force & applications Couples , applications	Lectures and practical training	Oral exams And practical training
8-9	Theoretical=2 Practical=1	**Evaluate static equilibrium conditions**	Equilibrium , definition & the conditions and applications	Lectures and practical training	Oral exams And practical training
10	Theoretical=2 Practical=1	**Draw accurate free body diagrams**	Free body diagram , procedure of the drawing "F.B.D"	Lectures and practical training	Oral exams And practical training
11-12	Theoretical=2 Practical=1	**Analyze friction forces practically**	Friction , theory and applications types of the friction , coefficient of friction , angle of friction	Lectures and practical training	Oral exams And practical training
13	Theoretical=2 Practical=1	**Determine centroids geometrically accurately**	Center of gravity & centroid applications , lines	Lectures and practical training	Oral exams And practical training
14	Theoretical=2 Practical=1	**Apply center gravity concepts**	Center of gravity & centroid , application , single area	Lectures and practical training	Oral exams And practical training
15-16	Theoretical=2 Practical=1	**Calculate moment of inertia**	Moment of inertial , definition , single area	Lectures and practical training	Oral exams And practical training

17-18	Theoretical=2 Practical=1	**Apply parallel axis theorem**	Moment of inertial , application i- parallel axis theory transfer of axis	Lectures and practical training	Oral exams And practical training
19	Theoretical=2 Practical=1	**Apply Newton's second law**	Dynamics science definition the Newton's second law and application	Lectures and practical training	Oral exams And practical training
20	Theoretical=2 Practical=1	**Analyze rectilinear motion effectively**	Rectilinear motion definition and applications	Lectures and practical training	Oral exams And practical training
21	Theoretical=2 Practical=1	**Calculate free fall motion**	Free fall lows & application	Lectures and practical training	Oral exams And practical training
22	Theoretical=2 Practical=1	**Analyze curvilinear motion accurately**	Curvilinear motion low's & applications	Lectures and practical training	Oral exams And practical training
23	Theoretical=2 Practical=1	**Evaluate rotational motion dynamics**	Rotational motion about the fixed axes	Lectures and practical training	Oral exams And practical training
24	Theoretical=2 Practical=1	**Identify material strain types**	Strength of material , sort of the strain	Lectures and practical training	Oral exams And practical training
25	Theoretical=2 Practical=1	**Identify material stress types**	Strength of material , sort of the stress	Lectures and practical training	Oral exams And practical training
26	Theoretical=2 Practical=1	**Interpret stress curvature diagrams**	Drawing the curvature of the stress force	Lectures and practical training	Oral exams And practical training
27	Theoretical=2 Practical=1	**Analyze tension and compression**	Tension and compresses	Lectures and practical training	Oral exams And practical training
28	Theoretical=2 Practical=1	**Evaluate shearing force effects**	Sheering force , definition and application	Lectures and practical training	Oral exams And practical training
29	Theoretical=2 Practical=1	**Apply fluid mechanics principles**	Pascal & Archimedes theory and lows , applications	Lectures and practical training	Oral exams And practical training
30	Theoretical=2 Practical=1	**Apply Bernoulli's energy equation**	Benully formula , applications	Lectures and practical training	Oral exams And practical training

11.Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Modern car maintenance book
Main references (sources)	Currently available methodical boo
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name	**Mathematics**
2. Course Code	MPT-107-24-YM
3. Semester / Year:	Annual Course/ First Stage
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
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)	
Name: Alaa Hussain Majeed	Email: alaa.majeed.bib23@atu.edu.iq

8. Course Objectives

Course Objectives	**Teaching the student, a number of topics, such as matrices, determinants, functions, differentiation and integration, and statistics.**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical=2	**Understand matrices and determinants**	Matrices, determinants, and their properties	Lectures and practical training	Oral exams And practical training
2	Theoretical=2	**Solve linear equations efficiently**	Solving linear equations Linear equations, Cramer's method, applications, arc analysis, vectors	Lectures and Practical training	Oral exams And practical training
3	Theoretical=2	**Analyze vector quantities accurately**	Vectors, analysis of limits, types of vectors, quantities, standard vectors, curve algebra, vector arithmetic operations	Lectures and practical training	Oral exams And practical training
4	Theoretical=2	**Perform vector operations correctly**	Unit orthogonal vectors, vector scaling, scalar and cross product, applications to vectors, arc moment analysis	Lectures and practical training	Oral exams And practical training

5	Theoretical=2	**Apply logarithm properties effectively**	Logarithm, definition of logarithm, laws of logarithm and how to use them, solving logarithmic equations	Lectures and practical training	Oral exams And practical training
6	Theoretical=2	**Analyze trigonometric relationships accurately**	Trigonometric ratios and the relationship between them, some laws in trigonometric ratios, the function, the meaning of the function, the independent and dependent variables, the function	Lectures and practical training	Oral exams And practical training
7	Theoretical=2	**Apply trigonometry in calculations**	Measurements, purpose of trigonometric and algebraic functions, applications of linear velocity, areas	Lectures and practical training	Oral exams And practical training
8	Theoretical=2	**Differentiate algebraic functions correctly**	Details, derivative, derivative of algebraic functions, applications of the implicit function chain rule	Lectures and practical training	Oral exams And practical training
9	Theoretical=2	**Compute advanced function derivatives**	Higher order derivative, derivative of the exponential function, derivative of the logarithmic function	Lectures and practical training	Oral exams And practical training
10	Theoretical=2	**Differentiate trigonometric functions effectively**	Derivative of trigonometric functions, derivative of circular functions	Lectures and practical training	Oral exams And practical training
11	Theoretical=2	**Apply partial differentiation techniques**	Partial differentiation	Lectures and practical training	Oral exams And practical training
12	Theoretical=2	**Solve derivative-based problems**	Applications on the derivative (slope equation, perpendicular, velocity and acceleration)	Lectures and practical training	Oral exams And practical training
13	Theoretical=2	**Analyze instantaneous rate changes**	Derivative applications (instantaneous change)	Lectures and practical training	Oral exams And practical training
14	Theoretical=2	**Evaluate function extrema correctly**	Increasing, decreasing, maximum and minimum limits, inflection points, graphing the function	Lectures and practical training	Oral exams And practical training
15	Theoretical=2	**Integrate algebraic functions efficiently**	Integration, indefinite integration, integration of algebraic functions	Lectures and practical training	Oral exams And practical training
16	Theoretical=2	**Integrate exponential functions accurately**	Integration of exponential and logarithmic functions	Lectures and practical training	Oral exams And practical training
17	Theoretical=2	**Integrate trigonometric functions effectively**	Integration of trigonometric functions	Lectures and practical training	Oral exams And practical training
18	Theoretical=2	**Compute definite integrals correctly**	Definite integral, applications (distance under the curve, distance between the curve)	Lectures and practical training	Oral exams And practical training
19	Theoretical=2	**Calculate arc lengths accurately**	The rotational magnitudes and arc length of the curve	Lectures and practical training	Oral exams And practical training
20	Theoretical=2	**Apply numerical integration methods**	Approximation in integration (trapezoid rule, Simpson's rule)	Lectures and practical training	Oral exams And practical training
21	Theoretical=2	**Use advanced integration techniques**	Integration methods, retail integration	Lectures and practical training	Oral exams And practical training
22	Theoretical=2	**Perform substitution integrations correctly**	Integration by compensation method	Lectures and practical training	Oral exams And practical training

23	Theoretical=2	**Apply partial fraction integration**	Integration by partial fraction method for the first	Lectures and practical training	Oral exams And practical training
24	Theoretical=2	**Solve first-order differential equations**	Solving differential equations of the first order, i.e., discrete homogeneous	Lectures and practical training	Oral exams And practical training
25	Theoretical=2	**Solve linear differential equations**	Differential equations - linear - applications	Lectures and practical training	Oral exams And practical training
26	Theoretical=2	**Perform complex number operations**	Complex numbers - addition - subtraction - division - multiplication	Lectures and practical training	Oral exams And practical training
27	Theoretical=2	**Convert equations between forms**	Applied formula: Converting the carpentered characteristic to linear and vice versa	Lectures and practical training	Oral exams And practical training
28	Theoretical=2	**Analyze statistical data accurately**	Statistical operations, frequency distributions, histograms, and frequency curve	Lectures and practical training	Oral exams And practical training
29	Theoretical=2	**Interpret statistical graphs correctly**	Statistical operations, frequency distributions, histograms, and frequency curve	Lectures and practical training	Oral exams And practical training
30	Theoretical=2	**Compute statistical measures effectively**	Mean, range, standard deviation, variance	Lectures and practical training	Oral exams And practical training

11.Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures
Main references (sources)	Calculus Analysis Geometry, Thomas
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1..Course Name	**English language**
2.Course Code	ATU10-24-YM
3.Semester / Year	Annual Course/ First Stage
4.Description Preparation Date:	**1 / 12 / 2025**
5.Available Attendance Forms:	Attendance In-person
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: Alaa Hussain Majeed	Email: alaa.majeed.bib23@atu.edu.iq
8.Course Objectives	
Course Objectives	To provide the students with basic skills in both general and scientific English Language
9.Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-4	Theoretical=1	**Identify English sentence structures**	Unit -1- Introduction and Review to English language. Introduction to parts of speech. Sentence Patterns.	Lectures and practical training	Oral exams And practical training
5-6	Theoretical=1	**Understand scientific texts accurately**	Unit -2- Reading Comprehension and structure (selected scientific passages general to all specializations)	Lectures and practical training	Oral exams And practical training
7-8	Theoretical=1	**Analyze passages from disciplines**	Scientific Attitude (Simple present)	Lectures and practical training	Oral exams And practical training

9-10	Theoretical=1	**Use present tense appropriately**	Mathematics(passive)	Lectures and practical training	Oral exams And practical training
11-12	Theoretical=1	**Interpret passive mathematical statements**	Scientific Methods (simple past)	Lectures and practical training	Oral exams And practical training
13	Theoretical=1	**Describe methods using past**	Test	Lectures and practical training	Oral exams And practical training
14-15	Theoretical=1	**Assess English comprehension skills**	Unit -4- Conversation (from daily life Meeting people	Lectures and practical training	Oral exams And practical training
16-17	Theoretical=1	**Conduct basic social dialogues**	Talking about your job	Lectures and practical training	Oral exams And practical training
18-19	Theoretical=1	**Explain professional responsibilities clearly**	Unit -5- The use of library, Dictionary, and Internet.	Lectures and practical training	Oral exams And practical training
20-21	Theoretical=1	**Utilize reference sources effectively**	Unit -6- Translation Selected topics from internet to be translated.	Lectures and practical training	Oral exams And practical training
22-25	Theoretical=1	**Translate technical texts accurately**	Unit -7- Writing Technical Reports	Lectures and practical training	Oral exams And practical training
25-29	Theoretical=1	**Compose structured technical reports**	Unit -8- Terminology Selected Passages according to specializations	Lectures and practical training	Oral exams And practical training
30	Theoretical=1	**Understand technical terms correctly**	Final Test	Lectures and practical training	Oral exams And practical training

11.Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Technical English book project
Main references (sources)	Methodical books
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1..Course Name	**Arabic language**
2.Course Code	ATU11-24-YM
3.Semester / Year	Annual Course/ First Stage
4.Description Preparation Date:	**1 / 12 / 2025**
5.Available Attendance Forms:	Attendance In-person
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: Noor Aied	Email: noor.serkal.iba14@atu.edu.iq
8.Course Objectives	
Course Objectives	To recognize the beauty of the Arabic language and its literature, and for the student to acquire the ability to study the branches of the Arabic language
9.Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical=1	**Identify nouns and forms**	Parts of speech: the noun and its inflectional signs	Lectures and Practical training	Oral exams And practical training
2	Theoretical=1	**Analyze noun usage examples**	Applied models on the noun from the Holy Quran and Arabic literature	Lectures and Practical training	Oral exams And practical training
3	Theoretical=1	**Classify verbs correctly usage**	Verb, its types and conditions	Lectures and Practical training	Oral exams And practical training
4	Theoretical=1	**Apply verb rules accurately**	Applied models on the verb from the Holy Quran and Arabic literature	Lectures and Practical training	Oral exams And practical training
5	Theoretical=1	**Differentiate Arabic letter types**	Types of letters	Lectures and Practical training	Oral exams And practical training
6	Theoretical=1	**Use letters in context**	Applied models on the letters from the Holy Quran and Arabic literature	Lectures and Practical training	Oral exams And practical training
7	Theoretical=1	**Distinguish solar lunar letters**	Solar and lunar letters and the difference between them	Lectures and Practical training	Oral exams And practical training
8	Theoretical=1	**Apply solar lunar rules**	Applied models on the previous topic	Lectures and Practical training	Oral exams And practical training

9	Theoretical=1	**Identify tied long Taa**	Rules of the tied and long Taa	Lectures and Practical training	Oral exams And practical training
10	Theoretical=1	**Use tied long Taa**	Applied models on the tied and long Taa from the Holy Quran and Arabic literature	Lectures and Practical training	Oral exams And practical training
11	Theoretical=1	**Recognize alif writing rules**	Rules for writing the extended and shortened alif	Lectures and Practical training	Oral exams And practical training
12	Theoretical=1	**Apply alif writing rules**	Applied models on the extended and shortened alif from the Holy Quran and Arabic literature	Lectures and Practical training	Oral exams And practical training
13	Theoretical=1	**Analyze pre-Islamic poetry**	Texts from pre-Islamic poetry / Imru' al-Qais - Antarah ibn Shaddad	Lectures and Practical training	Oral exams And practical training
14	Theoretical=1	**Interpret Islamic poetry texts**	Texts from Islamic poetry / Hassan ibn Thabit - al-Hutay'ah	Lectures and Practical training	Oral exams And practical training
15	Theoretical=1	**Evaluate modern prose works**	Modern prose / novel and story	Lectures and Practical training	Oral exams And practical training
16	Theoretical=1	**Identify writing errors accurately**	Mistakes Common linguistic and spelling in administrative correspondence	Lectures and Practical training	Oral exams And practical training
17	Theoretical=1	**Apply number writing rules**	Rules for writing numbers	Lectures and Practical training	Oral exams And practical training
18	Theoretical=1	**Practice number writing correctly**	Practical models on the rules for writing numbers from the Holy Quran and Arabic literature	Lectures and Practical training	Oral exams And practical training
19	Theoretical=1	**Identify grammatical objects correctly**	The five objects / 1- The object 2- The object for which	Lectures and Practical training	Oral exams And practical training
20	Theoretical=1	**Apply object rules accurately**	Practical models on the object and the object for which	Lectures and Practical training	Oral exams And practical training
21	Theoretical=1	**Distinguish object types properly**	The absolute object , The object in which 5- The object with	Lectures and Practical training	Oral exams And practical training
22	Theoretical=1	**Practice object usage correctly**	Practical models and exercises	Lectures and Practical training	Oral exams And practical training
23	Theoretical=1	**Recognize vocative types correctly**	The vocative and its types	Lectures and Practical training	Oral exams And practical training
24	Theoretical=1	**Apply vocative forms correctly**	Practical models and exercises on the vocative	Lectures and Practical training	Oral exams And practical training
25	Theoretical=1	**Differentiate Dad and Dhad**	Dad and Dhad	Lectures and Practical training	Oral exams And practical training
26	Theoretical=1	**Practice Dad Dhad correctly**	Models on Dad and Dhad	Lectures and Practical training	Oral exams And practical training
27	Theoretical=1	**Apply punctuation rules properly**	Punctuation marks	Lectures and Practical training	Oral exams And practical training
28	Theoretical=1	**Analyze rhetorical prose examples**	Twenty-eight Old prose texts / Rhetoric as a model	Lectures and Practical training	Oral exams And practical training
29	Theoretical=1	**Interpret Umayyad poetry texts**	Texts from Umayyad poetry / Al-Farazdaq - Jarir	Lectures and Practical training	Oral exams And practical training
30	Theoretical=1	**Evaluate modern poetry examples**	Texts from modern poetry / Al-Sayyab - Nazik Al-Malaika	Lectures and Practical training	Oral exams And practical training

11 Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12 Learning and Teaching Resources

Required textbooks (curricular books, if any)	Technical Arabic book project
Main references (sources)	Methodical books
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Stage 2 :- For all branches

Course Description Form

1. Course Name:	**Industrial management**
2. Course Code:	MPT-209-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms	Attendance In-person
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)	
Name: Raqeyah Jawad Nagi	Email: raqeyah.najy@atu.edu.iq
8. Course Objectives	
Course Objectives	**Teaching the student the basic concepts of management, power stations, and the study and management of projects**
9. Teaching and Learning Strategies	
Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	Theoretical=2	**Develop effective strategic plans**	Strategic Planning	Lectures and practical training	Oral exams And practical training
3-4	Theoretical=2	**Implement strategic management practices**	Strategic Management	Lectures and practical training	Oral exams And practical training
5-6	Theoretical=2	**Apply total quality principles**	Total Quality Management	Lectures and practical training	Oral exams And practical training
7-8	Theoretical=2	**Manage supply chain efficiently**	Supply Chain Management	Lectures and practical training	Oral exams And practical training
9-10	Theoretical=2	**Plan and manage projects**	Project Management	Lectures and practical training	Oral exams And practical training
11-12	Theoretical=2	**Enhance productivity through processes**	Productivity and Process Improvement	Lectures and practical training	Oral exams And practical training

13-14	Theoretical=2	**Ensure quality and assurance**	Quality Management and Quality Assurance	Lectures and practical training	Oral exams And practical training
15-16	Theoretical=2	**Apply statistics in management**	Statistics and Mathematics in Management	Lectures and practical training	Oral exams And practical training
17-18	Theoretical=2	**Implement ERP system effectively**	Enterprise Resource Planning	Lectures and practical training	Oral exams And practical training
19-20	Theoretical=2	**Analyze decisions systematically**	Decision Analysis	Lectures and practical training	Oral exams And practical training
21-22	Theoretical=2	**Identify and mitigate risks**	Risk Management	Lectures and practical training	Oral exams And practical training
23-24	Theoretical=2	**Manage innovation and change**	Innovation and Change Management	Lectures and practical training	Oral exams And practical training
25-26	Theoretical=2	**Integrate IT in management**	Information Technology in Industrial Management	Lectures and practical training	Oral exams And practical training
27-28	Theoretical=2	**Analyze industrial economic finances**	Industrial Economics and Finance	Lectures and practical training	Oral exams And practical training
29-30	Theoretical=2	**Ensure industrial health safety**	Occupational Health and Safety in the Industrial Environment	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed

1- 10 marks for the first theoretical semester and 10 marks for practical.

2- 10 marks for the second semester, theoretical + 10 marks for practical

3 - 10 marks for student activities

4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Industrial management book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1. Course Name:	**Computer and Artificial Intelligence**
2. Course Code:	ATU22-24-YM
3. Semester / Year:	Second Stage / Annual Course
4. Description Preparation Date:	**1 / 12 / 2025**
5. Available Attendance Forms:	Attendance In-person
6. Number of Credit Hours (Total) / Number of Units (Total):	**60 Hours / 2 Units**
7. Course administrator's name (mention all, if more than one name)	
Name: Alaa Majeed shnin	Email: alaa.shnen.iba@atu.edu.iq

8. Course Objectives

Course Objectives	**Teaching the student the basic concepts of the Internet, Excel, and AutoCAD**

9. Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
3-2-1	Theoretical=1 practical=1	**Understand networks and Internet**	The concept of networks and its types - the concept of the Internet -its operation - description of the home screen and its components - how to connect to the World Wide Web) Web - (benefiting from the famous search engines Yahoo , Goggle – Learn about ways to search for and access information	Lectures and practical training	Oral exams And practical training
-6-5-4 -9-8-7 10	Theoretical=1 practical=1	**Use Excel for calculations**	Excel program : Learn about the concept of the program: its benefits, specifications, features, and ways to operate it, and learn about the main screen and its components, and how it contains various effective menus and tools. The concept of the cell, basic data types and how to enter them How to Save Workbook , Worksheet Close the program and close the file Open the saved file, enter data, perform simple calculations, and learn how to adjust or format and structure data within a single cell or group of cells. Learn about ways to collect data or groups of cells in their different forms, as well as how to sort data Use some of the functions provided by the program such as , Sum, Min, Max < count, SQRT, Average and other useful related statistical functions Learn about the editing process provided by the program, how to copy data or	Lectures and practical training	Oral exams And practical training

			move data, and learn about the concept of copying mathematical operations, as well as the concept of relative cells and absolute cells . Control cell width : Change its style and format by using the formatting tools Dealing with charts and how to convert digital and textual data into charts of various types through the Chart Wizard command and learning how to make the modifications and revisions provided by the program. Learn how to add or delete rows or columns on a work page and how to print digital data or charts		
11	Theoretical=1 practical=1	**Operate AutoCAD drawing tools**	Auto CAD damage recognition program - Arc) – Absolute –Relative – Polar (line Multiline – line – point – circle depends on the different working environment of the screen Menus –Screen – Scroll Bars –Tool Bars – Properties	Lectures and practical training	Oral exams And practical training
12	Theoretical=1 practical=1	**Create and save drawings**	Prepare a drawing sheet - Open a new file -Limits – Drawing units – Grid _ - Jump , Snap ,save as , Save	Lectures and practical training	Oral exams And practical training
-14-13 15	Theoretical=1 practical=1	**Draw charts efficiently**	Learn about chart drawing commands	Lectures and practical training	Oral exams And practical training
-17-16 18	Theoretical=1 practical=1	**Edit drawings accurately**	Learn about editing commands Mirror - Move - Copy – Offset	Lectures and practical training	Oral exams And practical training
19	Theoretical=1 practical=1	**Use Osnap for precision**	Fine drawing Osnap	Lectures and practical training	Oral exams And practical training
20	Theoretical=1 practical=1	**Dimension drawings correctly**	Add dimensions	Lectures and practical training	Oral exams And practical training
21	Theoretical=1 practical=1	**Annotate drawings professionally**	Add text and sectors Hatch	Lectures and practical training	Oral exams And practical training
22	Theoretical=1 practical=1	**Manage layers and properties**	Control drawing specifications Layer - Properties - linotypes -	Lectures and practical training	Oral exams And practical training
23	Theoretical=1 practical=1	**Use blocks effectively**	Blocks and Attributes	Lectures and practical training	Oral exams And practical training
24	Theoretical=1 practical=1	**Perform measurement operations accurately**	Measure – Block – wblock – explode – divide	Lectures and practical training	Oral exams And practical training
26-25	Theoretical=1 practical=1	**Create 3D drawing views**	Introduction to 3D drawing Ucs - Vports - Elev-thickness	Lectures and practical training	Oral exams And practical training
28-27	Theoretical=1 practical=1	**Generate 3D surfaces effectively**	Create3 D surfaces	Lectures and practical training	Oral exams And practical training
30 - 29	Theoretical=1 practical=1	**Model 3D solid objects**	Create3 D solids	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Car parts book
Main references (sources)	Currently available methodical book
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1.Course Name:	**Baath crimes**
2.Course Code	**ATU24-24-YM**
3.Semester / Year:	Second Stage / Annual Course
4.Description Preparation Date:	**1 / 12 / 2025**
5.Available Attendance Forms:	Attendance In-person
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)	
Name: Ahmed Abdul Rasool Abdulredha	Email: ahmed.jaber.iba114@atu.iq

8.Course Objectives

Course Objectives	It is to shed light for the generations born after the fall of the regime on the many crimes committed by the Baath Party regime and Saddam Hussein against the Iraqi people. These crimes were diverse, including war crimes, crimes against humanity, genocide, and economic crimes

9.Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical=2	**Define crimes linguistically clearly**	The concept of crimes linguistically and terminologically Crime departments	Lectures and practical training	Oral exams And practical training
2	Theoretical=2	**Identify international crime types**	Types of international crimes	Lectures and practical training	Oral exams And practical training
3	Theoretical=2	**Analyze court decisions effectively**	Decisions issued by the Supreme Criminal Court	Lectures and practical training	Oral exams And practical training
4	Theoretical=2	**Examine psychological crime effects**	Psychological and social crimes and their effects, and the most prominent	Lectures and practical training	Oral exams And practical training

5	Theoretical=2	**Describe Baath regime violations**	violations of the Baathist regime in Iraq	Lectures and practical training	Oral exams And practical training
6	Theoretical=2	**Explain psychological crime mechanisms**	Psychological crimes, mechanism of psychological crimes	Lectures and practical training	Oral exams And practical training
7	Theoretical=2	**Analyze psychological punishment methods**	The mechanism of pressure and psychological punishment / the mechanism of scientific impoverishment / the effects of psychological crimes	Lectures and practical training	Oral exams And practical training
8	Theoretical=2	**Identify social crimes section-one**	Social crimes, first section	Lectures and practical training	Oral exams And practical training
9	Theoretical=2	**Identify social crimes section-two**	Social crimes, section two	Lectures and practical training	Oral exams And practical training
10	Theoretical=2	**Explain Iraqi law violations**	Violations of Iraqi laws and their forms, Section One	Lectures and practical training	Oral exams And practical training
11	Theoretical=2	**Analyze legal violation forms**	Violations of Iraqi laws and their forms, Section Two	Lectures and practical training	Oral exams And practical training
12	Theoretical=2	**Examine political military violations**	Some decisions regarding political and military violations of the Baath regime	Lectures and practical training	Oral exams And practical training
13	Theoretical=2	**Describe Baathist detention locations**	Prison and detention places of the Baath regime	Lectures and practical training	Oral exams And practical training
14	Theoretical=2	**Identify environmental crime acts**	Environmental crimes of the Baath regime	Lectures and practical training	Oral exams And practical training
15	Theoretical=2	**Examine Basra environmental crimes**	Environmental crimes in Basra	Lectures and practical training	Oral exams And practical training
16	Theoretical=2	**Explain radioactive contamination cases**	Contamination with radioactive materials / Halabja	Lectures and practical training	Oral exams And practical training
17	Theoretical=2	**Analyze urban destruction incidents**	Destruction of cities and villages	Lectures and practical training	Oral exams And practical training
18	Theoretical=2	**Describe Jassim River battle**	The battle of the Jassim River and the burning of oil wells	Lectures and practical training	Oral exams And practical training
19	Theoretical=2	**Explain marshes destruction process**	Drying the marshes	Lectures and practical training	Oral exams And practical training
20	Theoretical=2	**Assess agricultural destruction cases**	Demolishing palm groves, trees and crops	Lectures and practical training	Oral exams And practical training
21	Theoretical=2	**Identify mass grave crimes**	Introduction to mass grave crimes	Lectures and practical training	Oral exams And practical training
22	Theoretical=2	**Describe 1963 genocide graves**	Incidents of genocide graves committed by the Baathist regime/events of 1963	Lectures and practical training	Oral exams And practical training
23	Theoretical=2	**Analyze post-1979 mass graves**	Introduction to the events spanning the years 2003-1979	Lectures and practical training	Oral exams And practical

			and their relationship to mass graves.		training
24	Theoretical=2	**Examine war-related mass graves**	The events of the Iran-Iraq War 1980-1988 AD and their relationship to mass graves	Lectures and practical training	Oral exams And practical training
25	Theoretical=2	**Describe 1987-1988 mass graves**	The events of 1988-1987 and their relationship to mass graves	Lectures and practical training	Oral exams And practical training
26	Theoretical=2	**Explain 1991 uprising graves**	The events of the Shaabani uprising in 1991 AD and their relationship to mass graves	Lectures and practical training	Oral exams And practical training
27	Theoretical=2	**Identify Iran-Iraq war graves**	Genocide graves related to the Iran-Iraq War for the period 1980-1988 AD:	Lectures and practical training	Oral exams And practical training
28	Theoretical=2	**Analyze 1983 Kurdish genocide**	Graves of the genocide of the Barzunian Kurds in 1983	Lectures and practical training	Oral exams And practical training
29	Theoretical=2	**Describe 1991 uprising graves**	Genocide graves of the 1991 Shaaban Iya uprising, first section	Lectures and practical training	Oral exams And practical training
30	Theoretical=2	**Examine 1991 uprising graves**	Genocide Graves of the 1991 Shaaban Iya Uprising, Section Two	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1- 10 marks for the first theoretical semester and 10 marks for practical.
2- 10 marks for the second semester, theoretical + 10 marks for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Baath crimes book
Main references (sources)	Methodical books
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1..Course Name	**English language**
2.Course Code	ATU20-24-YM
3.Semester / Year	Second Stage / Annual Course
4.Description Preparation Date:	**1 / 12 / 2025**
5.Available Attendance Forms:	Attendance In-person
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: Alaa Hussain Majeed	Email: alaa.majeed.bib23@atu.edu.iq

8.Course Objectives

Course Objectives	To provide the students with basic skills in both general and scientific English Language

9.Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-4	Theoretical=1	**Identify English question types**	Unit 1- Using questions in English, types of questions Knowing parts of speech in English	Lectures and practical training	Oral exams And practical training
5-6	Theoretical=1	**Use present tense correctly**	Unit 2- Simple present tense, present continuous tense, difference between have and have	Lectures and practical training	Oral exams And practical training
7-8 9-10 11 12 - 13	Theoretical=1	**Differentiate have usage**	Unit 3-Simple past tense Past continuous tense Using prepositions with time expressions Solving exercises of	Lectures and practical training	Oral exams And practical training
14-15 16-17	Theoretical=1	**Apply past tenses accurately**	Unit 4- Countable and uncountable nouns, quantity expressions Indefinite and definite articles, solving exercises of Unit 4	Lectures and practical training	Oral exams And practical training

18-19	Theoretical=1	**Use prepositions effectively**	Unit 5- Simple future tense, verb patterns Solving exercises of Unit 5	Lectures and practical training	Oral exams And practical training
20-21	Theoretical=1	**Classify nouns by countability**	Unit 6- Using the verb like, comparative and superlative adjectives Solving exercises of Unit 6	Lectures and practical training	Oral exams And practical training
22-25	Theoretical=1	**Apply articles correctly**	Unit 7- Present perfect tense and knowing the circumstances used with the present perfect Using the question tool how long Solving exercises of Unit 7	Lectures and practical training	Oral exams And practical training
25-29	Theoretical=1	**Form future tense correctly**	Unit 8- Using the verb have to in the affirmative, negative and interrogative cases Incomplete auxiliary verbs	Lectures and practical training	Oral exams And practical training
30	Theoretical=1	**Use adjectives comparatively accurately**	Adverbial phrases If conditional Solving exercises of Unit 9	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed

1- 10 marks for the first theoretical semester and 10 marks for practical.

2- 10 marks for the second semester, theoretical + 10 marks for practical

3 - 10 marks for student activities

4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Technical English book project
Main references (sources)	Methodical books
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1..Course Name	**Arabic language**
2.Course Code	ATU21-24-YM
3.Semester / Year	Second Stage / Annual Course
4.Description Preparation Date:	**1 / 12 / 2025**
5.Available Attendance Forms:	Attendance In-person
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: Noor Aied	Email: noor.serkal.iba14@atu.edu.iq

8.Course Objectives

Course Objectives	To recognize the beauty of the Arabic language and its literature, and for the student to acquire the ability to study the branches of the Arabic language

9.Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical=1	**Identify diacritical marks correctly**	Original and secondary diacritical marks	Lectures and practical training	Oral exams And practical training
2	Theoretical=1	**Apply diacritical marks accurately**	Examples and applied exercises on the subject of diacritical marks	Lectures and practical training	Oral exams And practical training
3	Theoretical=1	**Differentiate nouns and verbs**	Distinguishing between nouns and verbs	Lectures and practical training	Oral exams And practical training
4	Theoretical=1	**Analyze noun and verb marks**	Examples on noun and verb marks	Lectures and practical training	Oral exams And practical training
5	Theoretical=1	**Identify subject and predicate**	Subject and predicate	Lectures and practical training	Oral exams And practical training
6	Theoretical=1	**Apply subject-predicate rules**	Examples and applied exercises on subject and predicate	Lectures and practical training	Oral exams And practical training

7	Theoretical=1	**Write correct administrative language**	Formal aspects of administrative discourse and the importance of correct language in writing it	Lectures and practical training	Oral exams And practical training
8	Theoretical=1	**Analyze administrative correspondence**	Examples of administrative correspondence	Lectures and practical training	Oral exams And practical training
9	Theoretical=1	**Recognize indeclinable nouns**	The indeclinable noun	Lectures and practical training	Oral exams And practical training
10	Theoretical=1	**Apply indeclinable noun rules**	Examples and applied exercises on the indeclinable noun from the Holy Quran and Arabic literature	Lectures and practical training	Oral exams And practical training
11	Theoretical=1	**Identify abrogated verbs correctly**	Abrogated in Arabic grammar / Defective verbs and verb-like letters	Lectures and practical training	Oral exams And practical training
12	Theoretical=1	**Apply abrogated verb rules**	Examples and applied exercises on abrogated in Arabic grammar from the Holy Quran and Arabic literature	Lectures and practical training	Oral exams And practical training
13	Theoretical=1	**Differentiate active-silent Taa**	The difference between the active tea and the silent tea of femininity	Lectures and practical training	Oral exams And practical training
14	Theoretical=1	**Analyze Abbasid poetry text**	A text from Abbasid poetry / Al-Mustahabb as a model	Lectures and practical training	Oral exams And practical training
15	Theoretical=1	**Analyze Abbasid prose text**	A text from Abbasid prose / Al-RI salah as a model	Lectures and practical training	Oral exams And practical training
16	Theoretical=1	**Identify vocative types correctly**	The vocative and its types	Lectures and practical training	Oral exams And practical training
17	Theoretical=1	**Apply vocative rules correctly**	Examples and applied exercises on the vocative	Lectures and practical training	Oral exams And practical training
18	Theoretical=1	**Recognize grammatical dependents**	Dependents in grammar / 1- Adjective 2- Emphasis	Lectures and practical training	Oral exams And practical training
19	Theoretical=1	**Apply dependent rules accurately**	Examples and applied exercises	Lectures and practical training	Oral exams And practical training
20	Theoretical=1	**Classify substitution and conjoined**	Dependents / 3- Substitution 4- Conjoined	Lectures and practical training	Oral exams And practical training
21	Theoretical=1	**Solve grammatical exercises accurately**	Applied models and exercises	Lectures and practical training	Oral exams And practical training
22	Theoretical=1	**Use dictionary effectively**	How to extract the meaning of words in the dictionary	Lectures and practical training	Oral exams And practical training
23	Theoretical=1	**Analyze words using dictionary**	Applied examples on the dictionary of Lisan al-Arab	Lectures and practical training	Oral exams And practical training
24	Theoretical=1	**Write scientific research correctly**	How to write scientific research	Lectures and practical training	Oral exams And practical training
25	Theoretical=1	**Apply research writing rules**	Applied examples on writing scientific research	Lectures and practical training	Oral exams And practical training
26	Theoretical=1	**Interpret Quranic social justice**	A text from the Holy Quran on social justice	Lectures and practical training	Oral exams And practical training
27	Theoretical=1	**Analyze Quranic ethical text**	A text from the Holy Quran on good conduct and morals	Lectures and practical training	Oral exams And practical training
28	Theoretical=1	**Interpret Andalusian poetry text**	A text from Arabic poetry in the Andalusian era	Lectures and practical training	Oral exams And practical training

29	Theoretical=1	**Identify article types correctly**	The article / its types and pillars	Lectures and practical training	Oral exams And practical training
30	Theoretical=1	**Write model article correctly**	A model of the article	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed

1- 10 marks for the first theoretical semester and 10 marks for practical.

2- 10 marks for the second semester, theoretical + 10 marks for practical

3 - 10 marks for student activities

4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Technical Arabic book project
Main references (sources)	Methodical books
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet

Course Description Form

1..Course Name:	**The project**
2.Course Code:	MPT-208-24-YM
3.Semester / Year:	Second Stage / Annual Course
4.Description Preparation Date:	**1 / 12 / 2025**
5.Available Attendance Forms:	Attendance In-person
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)

Name: Asraa Adnan Nagem	Email: asraa@atu.edu.iq
Name: Ahmed Hadi Hatif	Email: ahmed.shuber@gmail.com
Name: Inas Jabbar Mohammed	Email: inasalrubaiy1973@gmail.com
Name: Ali Assim Abd Al-Razak	Email: ali.nit2009@atu.edu,iq

8.Course Objectives

Course Objectives	The course works to provide the student with practical skills and abilities by adopting the idea of repairing or building a refrigeration device Integrated while transferring the theoretical and applied information he studied into a tangible practical reality

9.Teaching and Learning Strategies

Strategy	1-Reciprocal Teaching strategy 2- Educational bag 3- Discussion strategy 4- E-learning strategy 5- E-learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	Theoretical=2	Provide the student with practical skills and abilities	Student projects are distributed to branch students by the branch or department and under the supervision of a professor, so that the projects include one of the following aspects: 1- Making integrated maps for a refrigeration or air conditioning device, within the specialized devices, and manufacturing parts or assembling the devices or accessories, and carrying out the necessary checks and tests on it after that. 2- The process of calculating the air conditioning loads for any public building and drawing the necessary diagrams and maps for all air ducts and water transmission pipes, as well as illustrations of the required accessories, installing the pipes and devices, the sequence of control devices, and testing the devices.	Lectures and practical training	Oral exams And practical training

11. Course Evaluation

The degree is distributed
1-70 marks for the discussion committee's evaluation
2-30 marks or the competent supervisor's evaluation

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	According to the project topic
Main references (sources)	Methodical books
Recommended books and references (scientific journals, reports...)	Reports
Electronic References, Websites	Internet