Ministry of Higher Education and Scientific Research
Scientific supervision and evaluation device
Department of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program and Course Description Guide

2024

Introduction:

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

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

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

Concepts and terminology:

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

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

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

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

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

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

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

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

Academic Program Description Form

University Name: Medical Technical University

College /Institute: Kut Technical Institute

Scientific Department: Power Mechanics Techniques

Academic or Professional Program Name: Surveying Techniques. Final

Certificate Name: Technical Diploma

Academic System: Course

Description Preparation Date: 20/2/2024 File Completion Date:20/2/2024

Signature

Head of Department Name:

Ass. Prof Shaalan ghanam afluq

Date

Signature

Scientific Associate Name

Ass. Prof. Dr. Adil Sabr Al-Ogaili

Date 25/3/2024

The file is checked by

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Head : Zamn Khalil Ibrahim

Date

Signature

Approval of the Dean

24/3/2024

See the program

Promoting to a distinguished and innovative department in teaching and training all mechanical mechanical techniques at a high quality level that contributes to the qualification of highly qualified national human cadres. The ambition is for the department to be a pioneer in providing educational and specialized programs in the field of modern mechanical technologies (automotive, air conditioning and refrigeration branches) and to be a model to be emulated at the ..local and global levels

Program message

.Preparing graduates with high professional skills and ethics •

.Instilling in the student the spirit of acquiring knowledge to serve the needs of society •

.Educational guidance and consolidation of national identity •

Community service by providing engineering consultations, studies and specialized training • .courses

Program Goals

1- Raising the technical level (practical experience) in the field of specialization.

2- The ability to use modern technologies and inspect and diagnose faults in all types of modern cars as well as refrigeration devices

3- Helping the student possess the skills to do his job.

4-The ability to work in a team and adapt to the work environment.

5- Commitment to professional ethics and acceptance of guidance from his superiors.

6- The ability to develop, innovate and solve technical problems.

7- The ability to handle workloads and manage time.

Program accreditation
nothing

Other external influences
nothing

Program structure				
Program structure	Number of courses	Study unit	percentage	* comments
Enterprise requirements				
College requirements				
Department requirements	20	69	%29	
summer training	There is			
Other				

Program description				
Year/level	Course or course code	Name of the course or course	Credit hours	
First / 2024-2023 stage / First course			theoretical	practical
	AU11	Automotive engine maintenance-1	**2**	**5**

	AU 12	Electric cars-1	**1**	**3**
	AU 13	The science of stillness	**2**	**1**
	AU 14	Mathematics-1	**2**	**-**
	AU 15	Computer basics	**1**	**2**
	AU 16	Computer engineering drawing-1	**-**	**3**
	AU 17	Fluid mechanics	**2**	**1**
	AU 18	human rights	**2**	**-**
	AU 19	Mechanical laboratories-1	**-**	**6**
	AU 20	English language-1	**2**	**-**
Year/level	Course or course code	Name of the course or course	theoretical	practical
First / 2024−2023 stage / Second course	**AU 21**	Automotive engine maintenance-2	**2**	**4**
	AU 22	Electric cars- 2	**1**	**3**
	AU 23	Kinematics and resistance of materials	**2**	**1**
	AU 24	Mathematics -2	**2**	**-**
	AU 25	computer applications	**1**	**2**
	AU 26	Computer engineering drawing -2	**-**	**3**
	AU 27	Thermodynamics	**2**	**1**
	AU 28	The demolition is a fold	**2**	**-**
	AU 29	Mechanical laboratories -2	**-**	**6**
	AU 30	Arabic	**2**	**-**

Expected learning outcomes of the programm	
Knowledge	
1- To know the most important basic principles of mechanical techniques. 2- To determine the main functions of diagnosing faults. 3- To apply fault repair with realistic examples and case studies. 5- Analyze the readings of the testing devices with the practical reality. 6- To express his opinion on the concepts and developments related to the specialty	
Skills	
1- Skills in using references and terminology. 2- Skills in collecting and analyzing data on the topic. 3- Skills in collecting and analyzing data and how to use it in analyzing faults. 4- Training and personal development skills on how to use the devices 5- The ability to absorb and develop information.	
Value	
Developing students' abilities to share ideas	

–Teaching and learning strategies.

1 -Using the lecture method and active participation of students

2 **-Use the question and answer metho**d **.**

3 **-Students' participation in presenting ideas .**

Evaluation methods

Weekly, monthly, daily exams and the end of the year exam.

education institution

Faculty members

Scientific rank		Specialization		Requirements/skills If) private (any		Preparing the teaching staff	
		general	**private**			**angel**	**lecturer**
Assistant Professor	**Shaalan ghanam afluq**	**Machines and equipment**	**Automotive**			**1**	
Teacher	**Qais Hussein Hassan**	**Machines and equipment**	**Machines and equipment**			**1**	
Teacher	**Zamen Khalil Ibrahim**	**Mechanical**	**Mechanics of materials**			**1**	
assistant teacher	**Majed farj hajem**	**Machines and equipment**	**Automotive**			**1**	

Professional development

Enhancing personal skills, knowledge and abilities to achieve success in the field of work. Professional development can include many activities such as training courses, workshops, online learning, career guidance, and developing personal abilities such as communication, time management and problem solving. Professional development processes play an important role in helping individuals achieve their professional and personal goals and increase the chances of .success in their career paths

Professional development for faculty members

Encouraging faculty members to continue researching and publishing results in highly ranked scientific journals, participating in conferences and seminars at the international and global level, and providing training programs and workshops in various fields such as curriculum development, educational technology, and student evaluation because these events help to update knowledge and develop skills

Applying for academic promotion for faculty members to advance their academic path by obtaining higher grades, improving their academic positions, or assuming administrative

Acceptance criterion

1 -Centrally through admission lists issued by the Ministry of Higher Education and Scientific Research.

2 -Direct submission by applying for the evening study.

The most important sources of information about the program

You should visit the websites of universities and colleges to obtain information about the curriculum development programs offered, including courses, requirements, and research opportunities, and to contact representatives of the department or program that offers the curriculum development program at interested universities, ask questions about the curriculum, requirements, and available opportunities, and invite scholars and researchers in the field of curriculum development during their attendance. At open days and university events, it can provide an opportunity to talk with faculty members and learn about the academic and research environment

Program development plan

Evaluation of the current program including curricula, teaching methods, evaluation, resources and tools through which we identify strengths and weaknesses and set goals and achieve them .through program development

The needs of teachers, technicians, students, industry and the local community are analyzed to ensure that the program meets their needs and the curriculum is updated to reflect the latest trends and knowledge in the field, and to include modern technologies and new educational resources. Improving teaching methods to enhance student interaction and motivation, including the use of educational technology. Evaluation methods must also be developed to be more comprehensive

Providing training courses and workshops for teachers and technicians to improve their educational and technological skills and their knowledge of the latest curricula and teaching .methods

Evaluating results and continuous improvement, identifying areas that need improvement and .taking the necessary actions for continuous improvement

Program skills chart

				Learning outcomes required from the programme											
Year / level	Course Code	Course Name	Essential or optional	Knowledge				Skills				Value			
				A1	A2	A3	A4	B 1	B2	B3	B4	C1	C 2	C3	C4
2023-2024 The first	AU 11	Automotive engine meantenance -1	Basic	/	/	/	/	/	/	/	/	/	/	/	/
	AU 12	Electric cars-1	Basic												
2023-2024 The first	AU 13	The science of stillness	Basic												
	AU 14	Mathematics-1	Basic												
2023-2024 The first	AU 15	Computer basics	Basic												
	AU 16	Computer engineering drawing-1	Basic												
2023-2024 The first	AU 17	Fluid mechanics	Basic												
	AU 18	human rights	my choice												
23-2024 The first	AU 19	Mechanical laboratories-1	Basic												
	AU 20	English language-1	Basic												

. Please check the boxes corresponding to the individual learning outcomes from the program subject to evaluation

Course description form / first stage / first semester

Course Name
Car engine maintenance-1
Course Code
AU 11
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
Available attendance forms
My presence
Number of study hours (total)/number of units (total) -6
study hours (7) hours per week / number of units)7((105)
(if more than one name is mentioned)7 - Name of the course administrator
Qais Hussein Hassan Email: qaiahussen@mtu.edu.iq
objectives Course

Objectives of the study subject	This course aims to demonstrate the importance of studying automobile maintenance in practical life and the use of special devices and equipment in the practical applied field

Teaching and learning strategie	
strategy	lecture Discussion and dialogue • Brainstorming • Use presentation and presentation method • Connecting theoretical engineering concepts with the practical aspect

Course structure					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
2	7	History of . cars	A brief history of the car, an explanation of the number, tools and devices used in car maintenance, the basic components of the car (chassis, engine, clutch, powertrain, drive shaft, rear axle, front axle, (suspension, steering	Theoretical and practical lecture	Theoretical and practical tests and fault diagnosis
2	7	Gasoline engines	Gasoline engines and their types (four-stroke - two-stroke) Explanation of four-stroke engines	Theoretical lecture and practical training	
3	7	The basic differences between engines	Explanation of two-stroke engines: The basic differences between four-stroke and two-stroke engines	Theoretical lecture and practical training	
6-4	14	Diesel engines	Diesel engines and their types four-stroke, two-stroke,) explanation of four-stroke diesel engines), explanation of two-stroke diesel engines, the basic differences between gasoline and diesel engines (i.e. the basic differences between spark ignition engines and compression ignition engines). Explanation of rotary and turbine engines and comparing them to conventional .engines	Theoretical lecture and practical training	
9-7	14	Basic engine . components	Basic engine components: Fixed parts: Cylinder block - Its basic components - Dry and wet cylinders, their faults - Methods of detecting them - Cylinder cover - Its basic components - Cylinder cover parts Basic engine components - Moving parts - Crankshaft - Crankshaft bearings Crankshaft lubrication Reasons -	Theoretical lecture and practical training	

			Breakdown of crankshaft bearings, connecting rods, methods of connecting connecting rods with pistons, pistons and their types - heat distribution to the pistons - piston rings - their types, valves, guides, seats - types of valves used - methods of cooling valves		
10	7	The system	Air intake system - its components low pressure - air filter - shapes - of the intake manifold exhaust system - its components - exhaust manifold and exhaust pipe - spark arrestors - exhaust mufflers - their types - their operation	Theoretical lecture and practical training	
11	7	. Winnowing	The principle of operation of the carburetor - fuel atomization (mixing fuel-air) - basic components of the carburetor start-up system - no-load speed) system - acceleration system) - idea about mechanical fuel injection	Theoretical lecture and practical training	
13-12	14	Electronic fuel injection systems	Central electronic fuel injection systems - their types - parts - learning about the systems (cold start - no- load speed control - fuel CFI-TBI (- injection control Mono -injection systems injection system - the effect of the fuel mixing ratio on the engine capacity and exhaust gas components (only the method of (operation	Theoretical lecture and practical training	
15-14	14	Parts of electronic fuel injection systems	Multi-point electronic fuel injection systems - their types - parts (pump - fuel filter - fuel pipes - fuel pressure regulator - cold start valve - injection valves) - Motronic - SFI- - injection systems PFI-LH-LU-L-DGL Note without explaining it electrically - just the working (method	Theoretical lecture and practical training	

Note: Vocabulary the operation Be application For vocabulary the theory with application on Devices Examination different	
Course evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources	
Required textbooks (methodology, if any)	
sources Main references	1- Textbook of tactical maintenance of vehicles . No. Borovskikh and F. Klinsikov / 2- Automotive engine control systems and methods for diagnosing their faults / Dr. Muhammad Ali Qasim and Dr. Suhail Fouad Al Nasser 3- Car Maintenance, Part One / Engineer Muhammad Ibrahim Shabib 1980
Recommended supporting books and references (scientific journals, reports….)	The institute's library for additional curricula resources
Electronic references, Internet sites	

Course Name
Automotive Electrical-1
Course Code
AU 12
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total) -18
3) study hours (3) hours per week / number of units (45)
Name of the course administrator (if more than one name is mentioned
Ahmed Muhammad Reda ahmed-mohammed@mtu.edu.iq
objectives Course

ectives of the study subject	The Department of Machinery and Equipment Technologies/Automotive Branch aims to prepare technical staff capable of being a link between the specialized technician and the skilled worker. The department prepares and prepares the graduate and provides him with theoretical, applied and .practical information to be able to carry out the work assigned to him

Teaching and learning strategies	
strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method onnecting theoretical engineering concepts with the practical aspect

Course structure					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	**Name of the unit/topic**	Teaching method	Class discussion
1	3	The student must understand the scientific material	**The foundations and principles on which car electricity depends include magnetism, magnetic forces magnetic fields , and the properties , of magnetism**	Theory and use of screen display	
2	3		**Electromagnetism, identification of magnetic poles, induction, and the right-hand rule**	Theory and use of screen display	
3	3		**Electric current, potential difference, electrical resistance, and Ohm's law**	Theory and use of screen display	
4	3		**Conductors, insulators and semiconductors**	Theory and use of screen display	
5	3		**Electrical circuits, electrical power, pressure drops, and connection methods (series, parallel, and the (difference between them**	Theory and use of screen display	
6	3		**Resistors, their work, and their types. Reading them using color and an ohmmeter**	Theory and use of screen display	
7	3		**Dilatants , their parts and function**	Theory and use of screen display	
8	3		**Expanding the application of mathematical exercises related to electrical circuits using well-known electrical laws within the topics of relevant definitions (voltage, ohms, (.amperes, etc**	Theory and use of screen display	
9	3		**The diode , its benefit and structure, and the transistor, its benefit, .structure and symbols**	Theory and use of screen display	Class discussion
10	3		**Lead-acid plate, its parts and specifications**	Theory and use of screen display	Class discussion
11	3		**Chemical reactions during charging and discharging operations**	Theory and use of screen display	

12	3		**Specifications of lead-acid solution, method of preparing it, and measuring its density**	Theory and use of screen display	
13	3	The student must understand the scientific material	**Method of measuring cell voltage using a pressure gauge (voltmeter) for tables and methods of discharging the tables**	Theory and use of screen display	
15-14	3		**Methods of shipping new and used tables and determining their capacity and efficiency**	Theory and use of screen display	

Note: The practical vocabulary is an application of theoretical vocabulary with application to different inspection devices
With training the student on the use of examination devices (multimeters) and other .devices that assist in the examination

Course evaluation

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

Learning and teaching resources

Required textbooks (methodology, if any)

n references (sources)	**Methodological books prepared by the Technical Education Authority**
Recommended supporting books and references (scientific journals, reports….)	e institute's library for additional curricula resources

Electronic references, Internet sites

Course Name
The science of static-1
Course Code
AU 13
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance form
My presence
Number of study hours (total)/number of units (total) -30
study hours (3) hours per week / number of units)3((45)
Name of the course administrator (if more than one name is mentioned) -31
Aziz Alwan Hamza aziz.alwan@mtu.edu.iq

objectives Course	
Objectives of the study subject	Study of the force acting on bodies in a static state and study of stress and strain on bodies.

Teaching and learning strategies	
The strategy	**lecture** **Discussion and dialogue** **Brainstorming** **Use presentation and presentation method** **Connecting theoretical engineering concepts with the practical aspect**

Course structure					
the week	**hours**	**Required learning outcomes**	**Name of the unit or topic**	**Learning method**	**Evaluation method**
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Class discussion
1	3	Mechanics	**introduction in The science of stillness** **science Mechanics** **Concepts Basic** **Numerical And vectors** **laws Newton•** **Units** **Applications Use Mechanics in life**	theoretical	
5-2	3	Mechanics	**Systems Power** **introduction For systems Power** **System Power bilateral** **Dimensions** **ingredients Rectangular•** **Moment** **Husband** **Results** **Applications•**	theoretical	
8-6	3	Mechanics	**condition Balance** **introduction •** **Balance in System bilateral •** **Dimensions** **isolation the system And a planner** **the body The heat** **conditions Balance** **Applications**	theoretical	
10-9	3	Mechanics	**Friction** **introduction** **phenomena Friction** **Species Friction** **Applications**	theoretical	
12-11	3	Mechanics	**centers Bloc And the dots Central center Mass** **The dots Central from lines And the spaces And sizes**	theoretical	

			Objects And shapes The vehicle . Approximate Applications		
13	3	Mechanics	**Moments region Palaces Self introduction Definitions Regions The vehicle Outputs Palaces Self And rotation Interviewer . Applications**	theoretical	
15-14	3	Mechanics	**a job hypothetical introduction a job condition balance energy potential And stability Applications**	theoretical	

Practical the side

Practical side

Practical vocabulary

Practical vocabulary

Details Vocabulary	week. week
Discuss how to write laboratory reports	**1**
Finding the resultant of forces graphically (coplanar forces converging at a point)	**2**
Finding the resultant analytically (coplanar and convergent forces at the point)	**4-3**
Balance test. Types of supports used in balance situations	**6-5**
Discuss reports	**7**
Friction test/extraction of friction coefficient	**10-8**
Finding the center of gravity 1-The simple one 2-The compound	**13-11**
Determining the moment of inertia for different metal sections: 1- simple 2- compound	**15-12**

Course evaluation

according to the tasks assigned to the student, such as daily 1Distribution of the grade out of 1 00 .preparation, daily, oral, monthly, written exams, reports, etc

Learning and teaching resources

Required textbooks (methodology, if any)

Main references (sources)	Engineering Mechanics: Statics By James L. Meriam, L. G. Kraige , J. N. Bolton
Recommended supporting books and references (scientific journals, reports….)	e institute's library for additional curricula ources
Electronic references, Internet sites	Relying on electronic references (the Internet) in preparing lectures

Course Name
Mathematics-1
Course Code
AU 14
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total) -42
study hours, (2) hours per week / number of units)2((30)
Name of the course administrator (if more than one name is mentioned)
Sajid Hanoun Sharhan sajed.hanoun@mtu.edu.iq
objectives Course

ectives of the study subject	The other Scientific Threads in mathematics using requester identification And Solution Exercises when Logical Thinking on His ability and more

	on to get His information with Data link And how His ability more also . The issue Solution
Teaching and learning strategie	
strategy	**engineering lecture** **Discussion and dialogue** **Brainstorming** **Use presentation and presentation method** **Connecting theoretical concepts**

Course structure					
the week	**hours**	**Required learning outcomes**	**Name of the unit or topic**	**Learning method**	**Evaluation method**
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Class discussion
1	2	The student understands the lesson	**Matrices, their definition, types, arithmetic operations in matrices, addition, subtraction and multiplication of matrices**	Theoretical lecture	Discussion and solution of exercises, quick exam, homework
2+3	4		**Determinants, their definition, how to calculate the binary and triple determinants, solving linear equations (Cramer's (method**	Theoretical lecture	Discussion and solution of exercises, quick exam, homework
5+4	4		**Vectors, vector analysis and vector quantities, vector arithmetic operations, scalar and cross multiplication**	Theoretical lecture	Discussion and solution of exercises, quick exam, homework

7+6	4		**Logarithms, definition of logarithm, laws of logarithm and how to use them in solving logarithmic equations, and .solving the exponential equation**	Theoretical lecture	Discussion and solution of exercises, quick exam, homework
9+8	4		**The function, the meaning of the function, the independent and dependent variables, the explicit function and the implicit function, trigonometric ratios and the relationship between them, some laws in trigonometric ratios, the goal, the goal of algebraic and trigonometric functions**	Theoretical lecture	Discussion and solution of exercises, quick exam, homework
11+10 1+12+ 3	8		**Differentiation, derivative, geometric definition of the derivative, direct derivative laws for algebraic functions, chain rule, implicit function, derivative of the exponential function, derivative of the logarithmic function, derivative of the trigonometric function**	Theoretical lecture	
15+14	4	The student understan ds the lesson	**Higher order derivatives, partial derivatives**	Theoretical lecture	

Course evaluation

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

Eearning and teaching resour

Required textbooks (methodology, if any)

Main references (sources)	Muhammad Saleh Al-Faraj- 1 (Your guide to (calculus

	Schaum series – Calculus - 2 Basic rules of calculus 3 -Thomas Kalkos book with solutions
Recommended supporting books and references (scientific journals, reports….)	**solid scientific journals related to mathematics**
Electronic references, Internet sites	**Websites on the Internet related to mathematics**

Course Name
Computer basics
Course Code
AU 15
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance form
My presence
Number of study hours (total)/number of units (total)
study hours (3) hours per week / number of units)3((45)
Name of the course administrator (if more than one name is mentioned)
Aziz Alwan Hamza **aziz.alwan@mtu.edu.iq**
objectives Course

ectives of the study subject	**The student will be able to use the computer in various fields and Its importance and the tasks become familiar with the operating system**

	it performs, computer components and accessories, and office application programs, Word

Teaching and learning strategies

strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method and practical engineering concepts

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Theoretical Details	Practical details	Class discussion
			Part1: Computing Fundamentals		
1	3	computer applications	Operating system OS's: what is and what it can do, an OS's Features types of OS's, their . importance, Windows OS's (95,97, 2000, Me, Xp , Vista, 7, 8, 10) and their 8.1 and characteristics, explain the differences between Os's and Application, computer software Mouse and power on/off, using their buttons.	Display OS's basics, on/shutdown computer, log off, log ,on, restart sleep using mouse ,(pointing, selecting dragging and (execution	Test + practical
2	3		Looking at the desktop, navigation, around desktop, using start button, working with application, using taskbar, understanding	Using desktop, moving around the desktop and using the main application icons, using start button, application	Test + practical

			software and hardware(their differences, importance, and relationships), explain hardware can influence the OS and software and Vice Versa, software updates, security and bugs, software Ethics.	**programs (install, open, close and (uninstall**	
3	**3**		**Files and folder: looking at typical window, moving and sizing window, using scroll bar, understanding and using my computer and recycle bin, concepts of drivers, folders and files(different and importance), directory and folder hierarchy and structure, understanding file name and common extensions**	**Looking at the widow details (title ,bar tools bar, address bar, status bar and widow's content), expand and collapse and close window, moving and resizing .window**	**Test + practical**
4	**3**		**Folder and file managements ,(create copy, delete, rename, find and ,(move common keyboard shortcuts,**	**Working with drive, folder and file using the listed operation, using common shortcuts ,(Ctrl , +C, +V, +A S….etc.) restore + .folder and files**	**Test + practical**
5	**3**		**Computer hardware, identifying computer ,main frame, super computer) minicomputer, desktop, laptop, ,tablet PCs servers, hand-held or mobile ,computers music or media players and electronic book readers)**	**Identify the hardware and explain the different types of computer using Illustrations or what is provided by .internet**	**Test + practical**
6	**3**		**Looking inside a computer microprocessor, system,) memory, storage**	**Explain microprocessor chip, type of**	**Test + practical**

			system), recognize input/output devices using keyboard, pointing) ,devices microphones, monitor, printers, projector and speakers), understanding how it works together.	memory (RAM, ROM, and SSD ,drive) memory units of ,measurements storage devices, how ,to use keyboard mouse printers and ,other peripherals identifying motherboard and their ports, how to connected computer .courses	
7	3		Using control panel, customizing desktop and display, changing date and ,time changing language, accessibility settings.	Identifying the ,control panel icon changing desktop ,icon, wallpaper display type and size, setup time and date, using language options, using .accessibility	Test + practical
8	3		Understanding power options ,(shut down sleep, hibernate), working with power settings, identifying mode of operation ,(safe mode and normal mode) understanding user accounts and rights create new user account,) change controls, rights and access)	Power off computer using different Options understanding the mode of operations, create user account, log off , log on, change .accounts	Test + practical
9	3		What is software (checking system requirements & hardware ,(implications application software (integrated ,suites) desktop publication, ,spreadsheets database managements, ,presentations, art engineering, mathematics, ,statistics	Understanding the application software types and their usage, how to install and uninstall programs and display them differences from deletes, update or reinstall the .software	

			medical, managements, contents ,creation multimedia, entertainment and system protection), managing software (install new one, uninstall, reinstall and updating software)		
10	**3**		**Disk managements programs ,(disk cleanup ,(check, optimize and compress what is troubleshooting? Managing hardware/software, keep copies ,of data dealing with viruses, malware ,and Trojans Getting windows help and support.**	**Delete systematically unnecessary files, scandisk, ,defragment disk compress disk, understand the most common troubleshooting of computer of software, copy files or disk using Antiviruses, getting .online help**	
			Part 2: key applications (office 2013 or 2010)		
1 1	**3**		**What is the key application?, ?what is can do Getting started (start & exit ,program) looking at the main screen (for word, excel PowerPoint), accessing & commands and characteristic features, understanding ribbon, tabs, status bar, scroll bar, create files from templates, how to get ,help manipulating files and exchange.**	**Starting each program and identifying The main screen in details as title bar main ribbon and their tools, formula bar in excel, windows content status .bar... etc**	
12	**3**		**Microsoft words: entering and editing text(using editing keys), writing in Arabic and English, changing orientation, using**	**Writing text with some wrong words and different formatting types to perform the task of this lesson**	

			ruler, move around the ,documents selecting text (word, line, paragraph, pages ,and all pages), save, close, open documents, customizing view, edit, text using (redo, undo, cut, paste, copy) Formatting text using font command, point brush and alignment types, spell check and correction		
13-14	**6**		**Understanding tab settings, working with indents, organizing list, working with Paragraphs, change line space, set paragraph spaces, working with &styles Using quick styles, finding and replacing items, document formatting, page Backgrounds and watermark, learn how write Arabic in English direction and write English word in Arabic direction**	**Indent text by hanging the first line or hanging the main paragraph body, line space types, find and replace text, find and replace using formatted text, add Background or watermark, add Different styles for .word and pages**	
15	**3**		**Page setup (changing paper ,size) orientation, margins), insert ,page breaks adding page number or title, applying columns and how to use it, preview and Print documents, using multimedia files (insert, image, object) and manipulating them, using tables (create, new one, insert excel table, selecting items, in (the table and formatting tables**	**Insert page number ,and/or images clipart, excel, sheet, ,create tables change column size, ,add row .formatting tables**	

Course evaluation -59	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources	
Required textbooks (methodology, if any)	
n references (sources)	1- Books and Tutorials provided online 2- IC3 GS4 which stand for internet and computing core certification global standard 4.
Recommended supporting books and references (scientific journals, reports….)	
Electronic references, Internet sites	

Course Name
Computer engineering drawing-1
Course Code
AU 16
-Semester/ year
The first semester of the academic year 2023/2024r
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total)
(3) hours per week / number of units (3) ,study hours (45)
e of the course administrator (if more than one name is mentioned)
Youssef Hassan Ghailan aimanisaiman21@gmail.com

objectives Course	
ectives of the study subject	Autocad program in the computer Use in Skill requester acquisition Engineering And Shapes And Engineering Processes To draw orders during from Dimensions And the trilogy Duality mechanical Edit And The drawing
Teaching and learning strategies .1	
strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method and practical engineering concepts

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Class discussion
1	3	The student understands the lesson	The drawing Engineering - overview - program - panel The drawing	Practical lecture	Discuss and solve exercises and a quick exam
2	3		How Preparation Page - table - texts	Practical lecture	
3	3		Methods fee Fonts - exercises	Practical lecture	
4	3		specifications Fonts (type - color thickness) - printing Board -	Practical lecture	
6-5	6		Drawing commands	Practical lecture	
9-7	6		Modification orders	Practical lecture	

10	3		Dimensions	Practical lecture	
12-11	6		Operations Geometric	Practical lecture	
14-13	6		exercises Applied	Practical lecture	
15	3		fee Shapes Engineering	Practical lecture	Discuss and solve exercises and a quick exam

Course evaluation -70	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as .daily preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources –71	
Required textbooks (methodology, if any) –72	
in references sources	Engineering drawing prepared by Youssef Al-Radi Engineering drawing, prepared by Abdul Rasul Al-Khafaf Mechanical drawing prepared by Abdul Rasul Al-Khafaf Engineering drawing prepared by the General Organization for Technical Education and Vocational Training, Saudi Arabia
Recommended supporting books and references (scientific (….journals, reports	oks and resources in the institute's rary
Electronic references, Internet sites	Types of websites about computer drawing

Course Name
Fluid mechanics
Code Course
AU 17
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total ()
study hours (3) hours per week / number of units)3((45)
administrator Name of the course (if more than one name is mentioned)
Alaa Ayoub alaaalshammari172@gmail.com
objectives Course

ectives of the study subject	Define the subject of types of fluid flow specially liquids, and study the and the parameters affecting it, also studying energy behavior of flow .transformation of fluid flow
Teaching and learning strategies	
strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method and practical engineering concepts

Course structure					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Class discussion
1	3	The student understands the lesson	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	Practical lecture	Diseusion and solving exercises – quiz- homework
2	3	The student understands the lesson	Definition of density, relative density, specific weight, specific volume, ideal fluid, real fluid, examples.	Practical lecture	Diseusion and solving exercises – quiz- homework
3	3	The student understands the lesson	Shear stress, dynamics of fluid flow, Newton's law of viscosity, dynamic Viscosity, kinematic viscosity, surface tension.- Capillarity, liquid vapor pressure,	Practical lecture	Diseusion and solving exercises – quiz- homework
5-4	6	The student understands the lesson	Pressure, liquid pressure head, Pascal aw of pressure, variation of liquid Pressure heat with respect to gravity, pressure at a datum for stationary liquid.	Practical lecture	Diseusion and solving exercises – quiz- homework
6	3	The student understands the lesson	Absolute pressure, gage pressure, barometer, pressure gage equipment.	Practical lecture	Diseusion and solving exercises – quiz- homework
8-7	6	The student understands the lesson	Bourdon gage, piezometer, U tube manometer, comparative gage.	Practical lecture	Diseusion and solving exercises – quiz- homework

10-9	6	The student understands the lesson	Fluid motion, fluid flow, pressure of fluid flow, laminar flow, turbulent flow , velocity profile of flow, Reynolds's number	Practical lecture	Diseusion and solving exercises – quiz- homework
12-11	6	The student understands the lesson	Flow rate, volumetric flow rate, mass flow rate, - ,Continuity equation Problems on continuity equation for uncompressibil fluids	Practical lecture	Diseusion and solving exercises – quiz- homework
13	3	The student understands the lesson	Bernoulli equation and application. Losses	Practical lecture	Diseusion and solving exercises –
14	3		Minor losses in pipes / friction losses, examples.	Practical lecture	
15	3		Measurement of flow, Venture meter, Orifice meter.	Practical lecture	

Practical vocabulary	
Details Vocabulary	week. week
Calibration of Bourdon tube pressure gauge	1
Measurement of mass flow rate by using hydraulic bench	2
Measurement of static pressure by using venturimeter .	3
Measurement of velocity and discharge flow by using venture meter	4
Calculate discharge coefficient for venture meter	5
Measurement of velocity and discharge flow by using orifice meter.	6
Experimental study of laminar, turbulent and transition flow	7
Measurement of frictional losses for laminar flow	8
Measurement of frictional losses for turbulent flow	9
Measurement of losses for sudden contraction and sudden enlargement	10-11
Measurement of losses for fitting, valves in pipe.	12-13
Measurement of jet force flow on flat plate.	14
Measurement of jet force flow on hemispherical plate.	15
Course evaluation83	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as .daily preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources	
Required textbooks (methodology, if any	
Main references (sources)	1-Frank M. White, Fluid Mechanics, Fourth Edition

	2 -T.AL- Shemmery , Engineering Fluid Mechanical, 2012 **3. M. Taki AL- Kamil , Fluid Mechanics, 2019**
Recommended supporting books and references (scientific (….journals, reports	
Electronic references, Internet sites	

Course Name

human rights
Course Code
AU 18
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total)
study hours, (2) hours per week / number of units)2((30)
Name of the course administrator (if more than one name is mentioned
Batoul Hussein Maidi Amaylyaaylya30@gmail.com
objectives Course

jectives of the study subject	The student must have the attitudes and values included in the human rights education curriculum and teach the student what human rights Human history up to modern and contemporary are through stages history
Teaching and learning strategies	
The strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method Political Connecting concepts

Course structur					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Class discussion
1	2	Knowing human rights, their definition and .goals	Human rights definition and goals	My presence	Discussion and question
2	2	Knowledge of human rights in heavenly laws .	Human rights in . divine laws	My presence	
3	2	Knowledge of human rights in contemporary . and modern history	Human rights in contemporary and modern history	My presence	
4	2	Knowledge of regional recognition of human .rights	Regional recognition of .human rights	My presence	
5	2	.Knowledge of NGOs	Non-governmental .organizations	My presence	
6	2	Knowledge of human rights in Iraqi .constitutions	Human rights in Iraqi constitutions	My presence	
7	2	Knowing the relationships between human rights and .public freedoms	Relations between human rights and .public freedoms	My presence	
8	2	Knowledge of economic, social and . cultural human rights	Economic, social and cultural human . rights	My presence	

9	2	Knowledge of modern human rights, the .right to development	Modern human rights: the right to . development	My presence	
10	2	Knowledge of guarantees of respect and protection of human rights at the .national level	Guarantees of respect and protection of human rights at the . national level	My presence	
11	2	Knowledge of guarantees of respect and protection of human rights at the .international level	Guarantees of respect and protection of human rights at the .international level	My presence	
12	2	Knowledge of the general theory of freedoms and the .origin of rights	The general theory of freedoms is the .origin of rights	My presence	
13	2	Knowledge of the legal .rule of the state of law	The legal rule of .the state of law	My presence	
14	2	Knowledge of the regulation of public freedoms by public .authorities	Regulation of public freedoms by .public authorities	My presence	
15	2	.Knowledge of equality	.equality		
Course evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as .daily preparation, daily, oral, monthly, written exams, reports, etc					
Learning and teaching resources					
Required textbooks (methodology, if any)					

sources Main references	1- Human rights (development, contents, and protection) by Prof. Dr. Riad Aziz Hadi 2- Human rights, democracy and public freedoms / Dr. Maher Sabry Kazem
Recommended supporting books and references (scientific journals, reports….)	
Electronic references, Internet sites	

Course Name
Mechanical laboratories-1
Course Code
AU 19
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total)
study hours, (6) hours per week / number of units)6((90)
Name of the course administrator (if more than one name is mentioned)
Workshops Name: Mechanical
objectives Course

jectives of the study subject	Gaining manual skill to carry out operating operations using various hand tools and measuring tools

Teaching and learning strategies

The strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method Political Connecting concepts

Course structure					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Class discussion
1	6	Mechanical workshops	Industrial development and - 1 the role of filings in it foot , its types and - Thyroid 2 methods of measurement - Depth height meter The process of shankara - - 3 the number used, the shankar, justice, the shankara leg , the tail and how to make a tail, the right angle, the two shankars , the ordinary and special shankar , the standard of unified heights, the measurement of angles. A practical exercise that combines the various Shankara processes	practical application	
2	6	Mechanical workshops	Files and filing processes Types of files, their specifications, places and types, and methods of attaching the works to them - Uses of files The filing process -	practical application	

			A practical exercise on the hook and the simple file		
4-3	12	Mechanical workshops	Cutting with a saw - a hand saw a saw weapon - installing a saw - weapon - the conditions that must be met in the sawing process - an exercise in the saw cutting process - a reciprocating saw - a saw weapon - installing a saw weapon - conditions that must be met in the sawing process - a disc saw - a saw weapon - duty conditions Availability in the publishing process. Practice cutting with a disc saw	practical application	
6-5	12	Mechanical workshops	The crown operation: types - 1 of embryos , the age of the embryos and their maintenance Types of manual hammer - heads - How to attach the hammer head - Exercise on the crown operation 2- The drilling and grinding process: Types of drills - Types of primers - Types of primers - How to perform the drilling process - Exercise on drilling operations Manual and mechanical pulverization	practical application	
8-7	12	Mechanical workshops	Welding: occupational safety and security precautions - gas welding - the equipment used and how to install and control it the gases used and their - specifications - welding safety, their types and measurements - other auxiliary materials - welding equipment: types of flames and the method of igniting and controlling the required flame - crafts : rinsing and cleaning the places to be welded - practical exercises: Welding opposite surfaces - perpendicular surfaces - inclined surfaces - circle welding .	practical application	

10-9	12	Mechanical workshops	Gas cutting operations - equipment used and precautions to be taken - Tamerin Talluly and Ardhali were cut off - cut off Da Lara - Cutting irregular shapes	practical application	
12-11	12	Mechanical workshops	welders' equipment - practical training on using the electric arc to weld different surfaces - protractor and tape welding - equipment used in each type - types of electrodes and how to install them - practical training on using each type	practical application	
15-13	12	Mechanical workshops	argon gas - doing exercises for welding artifacts using argon welding - spot MIC ,gas welding - doing exercises	practical application	

Course evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as .daily preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources	
Required textbooks (methodology, if any)	
n references (sources)	Assembly filings / technical methods and tools used, written by / Engelbert Gretz, translated by Engineer Reda Mahmoud Salman The Technical Reference for Foremen of Lathe Workers and Technical Workers S/Votin Darmir Printing and Publishing House, Moscow The Basic Rules in the Production and Design of Castings by Clarence Merck, translated by Dr. Muhammad Zaki Mounir, published in association with the Vanklin Institute of Industry – .New York
Recommended supporting books and references	

scientific journals,) (….reports	
Electronic references, Internet sites	

Course Name
English language
Course Code
AU 20
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
114- Number of study hours (total)/number of units (tota)
study hours, (2) hours per week / number of units)2((30)
Name of the course administrator (if more than one name is mentioned)
: Amil -Name: Marwan Majeed Al
objectives Course

jectives of the study subject	Improving students' skills in English language, developing their reading, writing and listening abilities, and enabling them to write .scientific reports in English language

Teaching and learning strategies

The strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method Political Connecting concepts

Course structure					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Class discussion
1	2		Unit one: hello Am/are/is, my/your This is with practice in war		
2	2		Unit two:your world He/she/they, his/her Questions		
3	2		unit three: it all went wrong past tenses past simple past continues		
4	2		Unit four: family and friends Possessive adjectives Possessive's Has/have Adjective + noun		
5	2		Unit Five: the way I live Present simple I/you /we /they A and an Adjective + noun		
6	2		Unit six: every day Present simple he/she Questions and negatives Adverbs of frequency		

7	2		Unit seven: my favourites Question words Pronouns This and that		
8	2		Unit eight: where I live ...There is/are Prepositions		
9	2		Unit nine: times past Was/were born Past simple - irregu lar verbs		
10	2		Unit ten: we had a great time! Past simple -regular & irregular Question Negatives Ago		
11	2		Unit eleven: I can do that Can /can't Adverbs ! Requests		
12	2		Unit twelve: please and thank you ...I'd like Some and any Like and would like		
13	2		Unit thirteen: here and now Present continuous Present simple & present continuous		
14	2		Unit fourteen: it's time to go! Future plans writing email and informant letter		
15	2		Unit: fifteen Revision		

Course evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as .daily preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources	
Required textbooks (methodology, if any)	
n references (sources)	first stage English language source -1 "New Headway Plus" Beginner Workbook, by John and Liz Soars, OXFORD University Pass, 2006

Recommended supporting books and references (scientific journals, (….reports	
Electronic references, Internet sites	

Course description form / first stage / Secoud semester

Course name
Automotive engine meantenance
Course Code
AU 21
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
Available attendance
My presence
Number of study hours (total)/number of units (total)
study hours, (6) hours per week / number of units)6((90)
Name of the course administrator (if more than one name is mentioned)
Qais Hussein Hassan **qaiahussen@mtu.edu.iq**
objectives Course

ectives of the study subject	Introducing the student to the types of engines used - explaining the parts of internal combustion engines (gasoline engine), its components, method of operation, and diagnosis. Malfunctions and their repair

Teaching and learning strategies

strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method Connecting theoretical engineering concepts with the practical aspect

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	6	The student understands the lesson	Systems injection Fuel e Central - its types - parts - method Its action - recognition on Operating systems Cold - control quickly No Carry - control -) Injection fuel Systems Injection Self the point One note without Explain it Electrically - (only statement Careers the components	Theoretical lecture + practical application	Theoretical and practical tests and fault diagnosis
-4 2	12	The student understands the lesson	MPI Systems injection Fuel e Self Points multimeter - its types - parts (pump - filter) . Fuel - pipes Fuel - regulator pressure Fuel - work the gate in Arrange entrance Air when the speed Passive - valves Injections)- Review all Sensors And triggers Related With it - problems And malfunctions Resulting from Damage any part	Theoretical lecture + practical application	
5	6	The student understands the lesson	Systems injection Fuel e Self Injection its components - (GDI) - Direct malfunctions	Theoretical lecture + practical application	
7-6	12	The student understands the lesson	system Cooling With water , parts system Cooling With water , Liquids Chemical Used I don't mind Freeze , And I don't mind Rust , cover Radioactive , Reasons to rise heat the engine, the difference between turn Closed And the open	Theoretical lecture + practical application	

			Organizer Alharai , How Its operation (system Cooling With the air , Its parts (differences between Cooling With water And in the air And features all Including malfunctions And problems system --- Cooling With water - reasons hot the engine		
8-9	12	The student understands the lesson	system Lubrication , pump the oil , Its types , parts system Lubrication , an idea General on Oils Used , turn Lubrication malfunctions system Lubrication , - Methods Reveal about her And its maintenance	Theoretical lecture + practical application	
10	6	The student understands the lesson	system Lubrication , pump the oil , Its types , parts system Lubrication , an idea General on Oils Used , turn Lubrication malfunctions system Lubrication , - Methods Reveal about her And its maintenance	Theoretical lecture + practical application	
11	6	The student understands the lesson	system Ignition Electronic Its types And Its components - control in System Ignition , comparison with distributor - The spark Regular	Theoretical lecture + practical application	
-12 13	12	The student understands the lesson	study Reasons Malfunctions Common in Engines Combustion Internal (engines) gasoline disturbance Ignition in Speeds Free And the high - no Response Engine (idle) - falling capacity - causes Knocking Engine - high consumption the oil And fuel And reasons Blowing in Engine - problems Other - examination pump Fuel - check Nebulizer - check Files Ignition	Theoretical lecture + practical application	
14	6	The student understands the lesson	means Modern To care By engine And its perpetuation - methods Maintenance Modern - clarification Maintenance Periodicity For the engine	Theoretical lecture + practical application	
15	6	The student understands the lesson	means Modern To care By engine And its perpetuation - methods Maintenance Modern - clarification Maintenance Periodicity For the engine	Theoretical lecture + practical application	Discussion and practical work
Note: The practical vocabulary is an application of theoretical vocabulary with application to different inspection devices					
Course evaluation -130					

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc
Learning and teaching resources –131
Required textbooks (methodology, if any)

n references (sources)	Car engines , General Organization for Technical and Vocational Training, Kingdom of Saudi Arabia Fuel system , General Organization for Technical – 2 and Vocational Training, Kingdom of Saudi Arabia Engines–1, General Organization for Technical and Vocational Training, Kingdom of Saudi Arabia Engines– 2, General Organization for Technical – and Vocational Training, Kingdom of Saudi Arabia Measurements and measurement tools, Department of Productive Efficiency and Vocational Training Use scientific articles and scientific films available on the Internet during the practical or theoretical lesson There are dozens of applied scientific films that explain each of the curriculum items, and it is recommended that they be shown to the student to He mastered the material .increase understanding 8- 6-AUTOMOTIVE TECHNOLOGY, Jack Erjavec , 5th Edition, 2009 9- https://www.mechaniclub.com/
Recommended supporting books and references (scientific journals, reports….)	e institute's library for additional curricula resources
Electronic references, Internet sites	

Course Name
Electric cars–2
Course Code
AU 22

year Semester
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total) .2
(4) hours per week / number of units (4) ,study hours (60)
Name of the course administrator (if more than one name is mentioned)
Ahmed Muhammad Reda ahmed-mohammed@mtu.edu.iq
objectives Course

jectives of the study subject	Teaching the student to know the basics of automobile electrical devices and how to connect and operate electrical and electronic circuits

Teaching and learning strategies	
The strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method onnecting theoretical engineering concepts with the practical aspect

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Class discussion
1	3	The student must understand	The foundations and principles on which car electricity depends include magnetism, magnetic	Theory and use of screen display	

		the scientific material	forces , magnetic fields , and the properties of magnetism		
2	3	The student must understand the scientific material	Electromagnetism, identification of magnetic poles, induction, and the right-hand rule	Theory and use of screen display	
3	3	The student must understand the scientific material	Electric current, potential difference, electrical resistance, and Ohm's law	Theory and use of screen display	
4	3	The student must understand the scientific material	Conductors, insulators and semiconductors	Theory and use of screen display	
5	3	The student must understand the scientific material	Electrical circuits, electrical power, pressure drops, and connection methods (series, parallel, and the (difference between them	Theory and use of screen display	
6	3	The student must understand the scientific material	Resistors, their work, and their types. Reading them using color and an ohmmeter	Theory and use of screen display	
7	3	The student must understand the scientific material	Dilatants , their parts and function	Theory and use of screen display	
8	3	The student	Expanding the application of mathematical exercises related to	Theory and use of screen display	

		must understand the scientific material	electrical circuits using well-known electrical laws within the topics of relevant definitions (voltage, ohms, (.amperes, etc		
9	3	The student must understand the scientific material	The diode , its benefit and structure, and the transistor, its .benefit, structure and symbols	Theory and use of screen display	Class discussion
10	3	The student must understand the scientific material	Lead-acid plate, its parts and specifications	Theory and use of screen display	Class discussion
11	3	The student must understand the scientific material	Chemical reactions during charging and discharging operations	Theory and use of screen display	Class discussion and practical application
12	3	The student must understand the scientific material	Specifications of lead-acid solution, method of preparing it, and measuring its density	Theory and use of screen display	Class discussion and homework
13	3	The student must understand the scientific material	Method of measuring cell voltage using a pressure gauge (voltmeter) for tables and methods of discharging the tables	Theory and use of screen display	
15-14	3	The student must understand the scientific material	Methods of shipping new and used tables and determining their capacity and efficiency	Theory and use of screen display	

Note: The practical vocabulary is an application of theoretical vocabulary with application to different inspection devices **With training the student on the use of examination devices (millimetres). And other devices that assist in the examination**	
Course evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as .daily preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources	
Required textbooks (methodology, if any)	
n references (sources)	**Principles of vehicle electricity, General Organization for Technical and Vocational Training, Kingdom of Saudi Arabia** **Electronic ignition system, General Organization for Technical and Vocational Training, Kingdom of Saudi Arabia** **Principles of vehicle electricity – practical, General Organization for Technical and Vocational Training, Kingdom of Saudi Arabia** **Electronic engine control systems, General Organization for Technical and Vocational Training, Kingdom of Saudi Arabia** **https://www.makktaba.com/2013/04/Books-cars-electricity.html 6-** **/https://www.mechaniclub.com**
Recommended supporting books and references (scientific (….journals, reports	**e scientific articles and scientific films available on the ernet during the practical lesson**
Electronic references, Internet sites	

Course Name
Kinematics and resistance of materials
Code Course
AU 23
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total)
study hours (3) hours per week / number of units)3 ((45)
Name of the course administrator (if more than one name is mentioned)
Aziz Alwan Hamza Al aziz.alwan@mtu.edu.iq
objectives Course

Objectives of the study subject	The main goal of the study of engineering dynamics is to develop the ability to predict the effects of force and motion while carrying out the creative design functions of engineering. Additionally, this course contains the introduction to strength of materials with an emphasis on applications
Teaching and learning strategies	
The strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method Connecting theoretical engineering concepts with the practical aspect

Course structure					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	
1	3	Mechanics	Introduction to dynamics □ Basic Concepts □ Newton's Laws □ Units □ Gravitation □ Dimensions □ Applications	theoretical	
4 -2	3	Mechanics	Kinematics of particles □ Introduction □ Rectilinear Motion □ Plane Curvilinear Motion □ Rectangular Coordinates (xy) □ Normal and Tangential Coordinates (nt) □ Polar Coordinates □ Space Curvilinear Motion □ Relative Motion (Translating Axes)	theoretical	Class discussion
5-7	3	Mechanics	Kinetics of particles Section a force, mass, and acceleration □ Newton's Second Law □ Equation of Motion and Solution of Problems □ Rectilinear Motion □ Curvilinear Motion □ Applications	theoretical	
8	3	Mechanics	Work and energy □ Work and Kinetic Energy □ Potential Energy □ Applications	theoretical	

11-9	3	Mechanics	Kinetics of systems of particles □ Introduction □ Generalized Newton's Second Law □ Work-Energy □ Impulse-Momentum □ Conservation of Energy and Momentum □ Steady Mass Flow □ Variable Mass □ Applications	theoretical	
13-12	3	Mechanics	Basic concepts in strength of materials □ Basic unit systems □ Concept of stress □ Direct normal stress □ Concept of strain □ Direct shear stress	theoretical	
15-14	3	Mechanics	Design properties of materials □ Tensile and yield strength □ Modulus and elasticity □ Hardness □ Impact energy □ Fatigue strength □ Creep	theoretical	
The practical side Practical side					

Details Vocabulary	week. week
	2-1
Calculate ground acceleration. Using a pendulum	4-3
Applications to linear motion	7-5
Applications of Newton's second law of motion	8-10
Measurement of speed and acceleration of linear motion	11-10
discussion. Work, power and energy	13-12
Tensile test	15-14

Course evaluation

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

Learning and teaching resources

Required textbooks (methodology, if any)	
Main references (sources()	1- Engineering Mechanics: Dynamics By eriam, L. G. Kraige , J. N. Bolton 2- Applied Strength of Materials By Robert L Mott, and Joseph A. Untener
Recommended supporting books and references (scientific journals, (….reports	The institute's library for additional curricula resources
Electronic references, Internet sites	Relying on electronic references (the Internet) in preparing lectures

Course Name
Mathematics–2
Course Code
AU 24
year /Semester
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total()
study hours, (2) hours per week / number of units)2((30)
Name of the course administrator (if more than one name is mentioned)
Sajed Hanoun Sharhan sajed.hanoun@mtu.edu.iq

objectives Course	
jectives of the study subject	The Scientific Threads in mathematics using requester identification Solution when Logical Thinking on His ability and more other His with Data link And how His ability more And also Exercises . The issue Solution on to get information
Teaching and learning strategies .3	
The strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method Connecting theoretical engineering concepts

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Class discussion
1-3	4	The student understands the lesson	Integration (Integration not Defined) for functions fatalism And the despair And logarithmic And trigonometry	Theoretical lecture	Discussion and solution of exercises, quick exam, homework
4-6	4	The student understands the lesson	Methods Integration (method Segmentation method Fractions Partial	Theoretical lecture	Discussion and solution of exercises, quick exam, homework
7-9	4	The student understands the lesson	integration Specific applications on integration Determinant area between curve , Function And the axis	Theoretical lecture	Discussion and solution of exercises, quick exam, homework

			And space between Bent over		
10-11	4	The student understands the lesson	Equations Differential - from Rank The first And the degree The first separate ,	Theoretical lecture	Discussion and solution of exercises, quick exam, homework
12-13	4	The student understands the lesson	Statistics , operations Statistics , distributions Iterative , runway Iterative , curved Iterative , middle Arithmetic mean Engineering	Theoretical lecture	Discussion and solution of exercises, quick exam, homework
15-14	4	The student understands the lesson	preparation The vehicle	Theoretical lecture	

Course evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as .daily preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources	
Required textbooks (methodology, if any)	
n references (sources)	Muhammad Saleh Al -Faraji , "Your "Guide to Differentiation and Integration Schaum series - Calculus - Basic rules of calculus Thomas Kalkos's book with solutions
Recommended supporting books and references (….scientific journals, reports)	All solid scientific journals related to mathematics
Electronic references, Internet sites	Websites on the Internet related to mathematics

Course Name
computer applications
Course Code
AU 25
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total()
study hours (3) hours per week / number of units)3((45)
Name of the course administrator (if more than one name is mentioned)
Aziz Alwan Hamzah Alwan aziz.alwan@mtu.edu.iq
objectives Course

jectives of the study subject	to become familiar with office application programs such as Excel PowerPoint, connecting to the Internet , and learning about the .outside world
Teaching and learning	
The strategy	• lecture • Discussion and dialogue • Brainstorming • Use presentation and presentation method • and practical engineering concepts

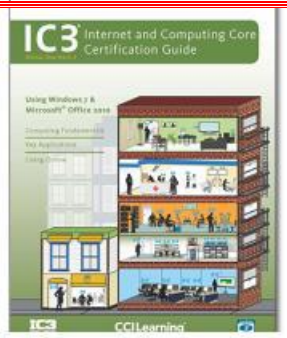
Course structure					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Theoretical Details	Practical details	Class discussion
1	3	computer applications	Microsoft excel: basic understanding terminology (work sheet, ,work file, cell cell pointer, cell contents, row and column reference), building formula, mathematical operations, hierarchy of the main mathematical operations, managing workbooks (create new one, create from template, enter data, moving ,around saving, opening, closing, (workbooks	Work with the principles of the workbook and worksheet and their contents, working with mathematical operators, create work sheet, using template, show the different types of data, save works, closing workbook or closing programs, moving around the .main excel window	Test + practical
2	3	computer applications	Manipulating the contents ,(selecting cells) columns, rows, worksheet, ,using undo redo, coping, moving data, changing column width and row height) , auto filling technique, deleting and ,editing contents Delete insert raw or column, formatting cells (number, font, ,alignment, border color and shading, protection of cells and (work sheet	Changing content ,auto fill data manipulating worksheet and data, using the different option .of formatting cell	Test + practical
4 – 3	6		Creating simple and complex formula	Writing different types formulas, copy	Test + practical

			using different types of writing, using absolute and relative address , understanding common error values, using common built-in functions ,(sum, average max, min, count, count A, ,count black, if round, Sqrt , today, day 360, ,left, right mid, trim), copying formulas, insert and deleting worksheets, formatting tables using auto format	formulas, understand the different Between absolute and relative cell identify error values, use common built in functions, ,customizing tables , managing sheets	
5	3		Working with the charts ,(create chart select chart elements, changing chart types, positioning and resizing chart, chart and axis titles, changing background and color effects, changing data ,series color adding or removing legend and data tables and grid lines), sorting data ascending and descending, sorting multiple ,fields Filtering data using auto and customize type, customizing printout ,using options previewing and printing .worksheet	Build different type ,of chart customizing their objects, building data Base table, sort data, filter data, print data base table or chart, changing print .options	Test + practical
6	3		Understanding PowerPoint and presentation, what does presentation include, working with the)presentations creating, saving, closing, opening	Create presentations, create using Template, insert slides, changing slides .layout, save work	Test + practical

			presentations), moving around in the presentation, managing the slides inserting, deleting,) ,rearranging the slides Changing layout, changing or modifying themes		
7	3		Managing slide objects (using select Versus edit mode manipulating text, create Tables and charts, inserting pictures or clip art or multimedia), creating ,master slide animating objects (customizing the animation, applying slide (transitions running the slide show and set up the presentation, previewing and printing .presentation Part 3: living online	Open previous ,work, insert image clipart, worksheet, sound, video, as you wish need, put transition time within slide and transition time between slides, run .slideshow	Test + practical
8	3		The internet, browsers and the word are wide web (the internet, the word wide web, web browsers), understanding web site addresses (web site protocols, resource (names	Exercise of checking connection of your computer system to the ,internet and use a simple utility (ping request) to test whether your internet connection is functioning or not, open web sites of different domains ,(.net, .org, .com (edu .	
9	3		Common web site/page ,elements browser features and functions (browser	Open different web browsers (internet	

			functions, browser functions, browser features), getting connected, defining network, advantages of using ,networks understanding local area network (LAN) and wide area network (WAN), connected to the internet (dial – up connection, direct connection), domain and ,subdomain need for security and firewalls	explorer, Firefox, Google, Chrome and other) to explain their functions addressing,) uploading, downloading and searching) and ,features (back forward, refresh ,buttons, home page tabs, favorites, bookmarks, checking the history, plug ins/add-ons), connect to the internet, identifying networks and their types	
10	3		Digital communication: how can I communicate with others? (electronic mail, instant messages, text ,messages VoIP, video conferencing, ,chartrooms social, networking, sites, ,blogs, presence and standards for electronic (communications	Exercise for creating E-mail (Google mail, Yahoo mail), social network account (Facebook ;and Twitter) Blogs, and others, sending text message using Facebook ,messenger Skype, and others, perform other activities in social ,network (status privacy, security	
11	3		Working with E-mail ,(username (passwords and credentials	Explore E-mail security properties password,) password recovery information, and ,(alternative e-mail sending email (to, CC, BCC, and	

				subject), attaching ,file to email building contact list and others	
12	3		Using Microsoft outlook (creating new messages, receiving messages, working with attachments, managing spam, empty the junk email folder, (automating outlook	Sending email using outlook (with exploring all properties above the junk email folder, automating ((outlook	
13	3		Digital citizenship: identifying ethical issues (understanding ,intellectual property copyrights and licensing), protecting your data or computer (identifying software threats, understanding viruses), protecting yourself while online, buying online, how Much information should I ?share Protecting your privacy	Try to make strong password, try to remove files without recoverable ability (ex: Cleaner free application)	
14	3		Finding information: searching for information (different type of ,Web sites searching for specific web sites), using search engine technology (understanding (how search engines work	Tray web search for certain keywords using different :search engine (ex Google Bing), also search multimedia files (picture, audio or video) in specialized search engine (ex: flicker com, YouTube.com . (	
15	3		Narrowing the search, evaluating the information (reliability and ,relevance) validity and authenticity, objectivity and (bias	Find specific and accurate information using Google (reduce no. of key ,words)	

				use quotation marks, use OR, search within certain site (and others	
Note			1. Access excluded from the program of first year and moved to the second year to support information and data management system, which may need and for crowded program. 2. Bold and large sized text represents the main title of the lesson. 3. The underline text represents the main subject 4. Books must be provided to support the instructor		

Course evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as .daily preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources	
Required textbooks (methodology, if any)	
n references (sources)	1- Books and Tutorials provided online . 2 –IC3 GS4 which stand for internet and computing core certification global standard
Recommended supporting books and references (scientific journals, reports….)	solid scientific journals related to computers
Electronic references, Internet sites	Websites on the Internet related to computers

Course Name
Computer engineering drawing-2
Course Code
AU 26
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
Available attendance forms
My presence
Number of study hours (total)/number of units (total)
study hours (3) hours per week / number of units)3((45)
Name of the course administrator (if more than one name is mentioned)
Youssef Hassan Ghailan aimanisaiman21@gmail.com
objectives Course

jectives of the study subject	acquires the skill in using the computer in the AutoCAD program to draw engineering operations and geometric shapes Mechanical 2D and 3D through drawing and modification commands
Teaching and learning strategies	
The strategy	• lecture • Discussion and dialogue • Brainstorming • Use presentation and presentation method • and practical engineering concepts

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Class discussion
2-1	6	The student understands the It is lesson applied by computer	Projection theory	Practical lecture	Discuss and solve exercises and a quick exam
3	3		the Hometown conclusion Muscatine from third	Practical lecture	
6-4	6		Pieces theory	Practical lecture	
7	3		The heat The drawing	Practical lecture	
10-8	6		Perspective	Practical lecture	
11	3		And separated Unification Shapes	Practical lecture	
12	3		exercises3D	Practical lecture	
13	3		His from Perspective fee All three hometown	Practical lecture	
15-14	6		Projects	Teaching method	
Course evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as .daily preparation, daily, oral, monthly, written exams, reports, etc					
Learning and teaching resources					
Required textbooks (methodology, is					
Main references (sources)			Preparation Engineering Drawing Satisfied Yusef		

	Preparation Engineering Drawing Pumice Prophet slave The mechanic Drawing- Pumice Prophet slave Preparation Preparation Engineering Drawing For the public Enterprise And The technician education Saudi , Professional Training Arabia
Recommended supporting books and references (scientific (….journals, reports	ooks and resources in the institute's library
Electronic references, Internet sites	Types of websites about computer drawing

Course Name
Thermodynamics
Course Code
AU 27
- Semester/ year
The second semester of academic program
Date this description was prepared
2024/2/7
A. Available attendance form
My presence
Number of study hours (total)/number of units (total)
study hours (3) hours per week / number of units)3((45)
Name of the course administrator (if more than one name is mentioned)
Alaa Ayoub alaaalshammari172@gmail.com
objectives Course

jectives of the study subject	Define the subject of study: theoretical processes and cycles of thermodynamics.The students have to know how it is used in heat

	transmission and power station plants can. Also theoretical study of different types of heat transfer
Teaching and learning strategies	
The strategy	**lecture** **Discussion and dialogue** **Brainstorming** **Use presentation and presentation method and practical engineering concepts**

Course structure					
the week	**hours**	**Required learning outcomes**	**Name of the unit or topic**	**Learning method**	**Evaluation method**
the week	hours	**Required learning outcomes**	**Name of the unit/topic**	**Teaching method**	Class discussion
1	3	**The student must understand the scientific material and apply it practically**	**Introduction** **Types of unit systems, density, specific volume, pressure, temperature**	**Theory and use of screen display**	**In-class discussion only** **Class discussion and simple quick exam**
2	3		**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.**	**Theory and use of screen display**	**In-class discussion only**
4-3	3		**Application of first law of thermodynamics**	**Theory and use**	**Discussion in class and giving class**

			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, throttling, condenser, boiler, turbine, Compressor, heat exchanger, open plane), representation of work for open systems for steady flow on pressure volume diagram, examples.	**of screen display**	**activity to students**
5	3	**The student must understand the scientific material**	**Second law of thermodynamics: Reversible process, entropy, temperature-entropy diagram, coordinates place on TS diagram, cycles, work of cycle, thermal efficiency of cycle, examples. State of second law for heat engine, and for heat pump.**	**Theory and use of screen display**	
10-6	12		**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. Adiabatic process, isentropic process, studying of process on P -V diagram and TS diagram, examples.**	**Theory and use of screen display**	**Class discussion and simple quick exam**
15-11	6		**standard air cycles: Carnot cycle reversed Carnot cycle, studying of cycle on P – V diagram and T – S diagram, examples. Otto cycle, diesel cycle, studying of cycle on P – V diagram and T – S diagram, calculating heat changed, work and efficiency of each cycle.**		
side Practical					
Details Vocabulary					**week. week**
How to use the components of measuring (pressure, temperature, power, work) with conversion of units?					**1**
Electrical Equivalent of Heat					**2**

Specific Heat of Solids	**3**
Mechanical Equivalent of Heat	**4**
Measure the Specific Latent Heat of Vaporization of Water	**5**
1ST Law of thermodynamics opened system	**6**
Determinations of exhaust gas analysis by using Or sat Apparatus	**7**
Study of Solar Energy device	**8**
An experiment of calculating thermal efficiency for steam cycle.	**9**
An experiment of Heat pump.	**10**
Calibration of thermocouples	**11**
Boyle gases law	**12**
Pressure-Temperature Relationship for Steam	**13**
Separating and Throttling Calorimeter	**14**
Cross-Flow Heat Exchanger	**15**

Course evaluation

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

Learning and teaching resources

Required textbooks (methodology, if any)

n references (sources)	**1-Cengel, Yunus A.; Boles, Michael A. (2005). Thermodynamics - an Engineering Approach. McGraw-Hill. ISBN 0-07-310768-9.** **2- PK Nag, Basics and Applied Thermodynamics by, Uploaded: 10-02-2017.** **3- RK RAJPUT, ENGINEERING THERMODYNAMICS, Third Edition: 2007** **4 Tarick AL- Shemmeri , ENGINEERING THERMODYNAMICS, 2010**
Recommended supporting books and references (scientific journals, (….reports	
Electronic references, Internet sites	

Course Name
Democracy
Course Code
AU 28
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total()
study hours, (2) hours per week / number of units)2((30)
Name of the course administrator (if more than one name is mentioned)
Batoul Hussein Maidi Amaylyaaylya30@gmail.com
objectives Course

jectives of the study subject	And the values directione requester I have It is represented that And education Democracy on Education Curriculum in Incoming the date until Human history Phase via Democracy What it is requester she gesticulate Democracy And a problem And contemporary the talk And its types Freedoms
Teaching and learning strategies	
The strategy	Teaching the student the trends and values contained in the Education and Democracy curriculum Teaching the student what democracy is Teaching students about freedoms and their types

Course structure					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Class discussion
1	2	Knowing democracy, its definition and .types	Democracy, its definition and types	My presence	Monthly and final exams
2	2	Know the concepts of . democracy	Know the concepts of democracy	My presence	
3	2	Knowledge of democracy in the third .world	Human rights in contemporary and modern history	My presence	
4	2	Knowledge of democratic systems in .the world	Democratic systems in the world	My presence	Monthly and final exams
5	2	Knowing the concept of freedoms and classification of public .freedoms	The concept of freedoms and classification of public freedoms	My presence	
6	2	Knowledge of basic freedoms, intellectual freedoms, economic .and social freedoms	Fundamental freedoms, intellectual freedoms, economic and social freedoms	My presence	Monthly and final exams
7	2	Knowing the freedoms of security and feeling	Freedoms of security and a	My presence	

		reassured, freedom of .coming and going	sense of reassurance, freedom of coming and going		
8	2	Knowledge of freedom of education, freedom of the press, freedom of assembly or consensus, freedom of associations, freedom . of work	Knowledge of freedom of education, freedom of the press, freedom of assembly or consensus, freedom of associations, . freedom of work	My presence	Monthly and final exams
9	2	Knowledge of freedom of ownership / freedom of trade and industry, freedom of .women	Freedom of ownership / freedom of trade and industry, freedom of women	My presence	
10	2	Knowledge of political parties and public .freedoms Scientific and technical progress and public .freedoms	Political parties and public freedoms Scientific and technical progress and public freedoms	My presence	Monthly and final exams
11	2	Knowing the future of .public freedoms	The future of public freedoms	My presence	
12	2	Knowledge of water and environmental .awareness in Iraq	Water and environmental awareness in Iraq	My presence	Monthly and final exams

13	2	Knowledge of peaceful community .coexistence	Peaceful community coexistence	My presence	
14	2	Knowledge of the rights of people with .disabilities	Rights of people with disabilities	My presence	Monthly and final exams
15	2	Knowledge of genocide crimes	Genocide crimes		

Course evaluation	
stribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources	
Required textbooks (methodology, if any)	
n references (sources)	Human rights (development – contents – protection) by Prof. Dr. Riad Aziz Hadi Human rights, democracy and public freedoms / Dr. Maher Sabry Kazem
Recommended supporting books and references (scientific (….journals, reports	
Electronic references, Internet sites	

Course Name
Mechanical laboratories-2
Course Code
AU 29
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total)
study hours, (6) hours per week / number of units)6((90)
Name of the course administrator (if more than one name is mentioned)
workshops and laboratories Automatic
objectives Course

jectives of the study subject	Gaining manual skill to carry out operating operations using various hand tools and measuring tools
Teaching and learning strategies	
The strategy	lecture Practical educational programme Training and work Creating models and training students Specialization work

Course structure					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Class discussion
1	6	Mechanical workshops	1- Industrial development and the role of filings in it 2- Thyroid foot , its types and methods of measurement - Depth height meter 3- The process of shankara - the number used, the shankar, justice, the shankara leg , the tail and how to make a tail, the right angle, the two shankars , the ordinary and special shankar , the standard of unified heights, the measurement of angles. A practical exercise that combines the various Shankara processes	practical application	
2	6	Mechanical workshops	Files and filing processes Types of files, their specifications, places and types, and methods of attaching the works to them - Uses of files The filing process - A practical exercise on the hook and the simple file	practical application	
4-3	12	Mechanical workshops	Cutting with a saw - a hand saw - a saw weapon - installing a saw weapon - the conditions that must be met in the sawing process - an exercise in the saw cutting process - a reciprocating saw - a saw weapon installing a saw weapon - - conditions that must be met in the sawing process - a disc saw - a saw weapon - duty conditions Availability in the publishing process. Practice cutting with a disc saw	practical application	

6-5	12	Mechanical workshops	1- The crown operation: types of embryos , the age of the embryos and their maintenance - Types of manual hammer heads - How to attach the hammer head - Exercise on the crown operation 2- The drilling and grinding process: Types of drills - Types of primers - Types of primers - How to perform the drilling process - Exercise on drilling operations Manual and mechanical pulverization	practical application	
8-7	12	Mechanical workshops	Welding: occupational safety and security precautions - gas welding - the equipment used and how to install and control it - the gases used and their specifications - welding safety, their types and measurements - other auxiliary materials - welding equipment: types of flames and the method of igniting and controlling the required flame - crafts: rinsing and cleaning the places to be welded - practical exercises: Welding opposite surfaces - perpendicular surfaces - inclined surfaces - circle . welding	practical application	
10-9	12	Mechanical workshops	Gas cutting operations - equipment used and precautions to be taken - Tamerin He cut off Talluly and Wardhali - cut off Da Lara - Cutting irregular shapes	practical application	
12-11	12	Mechanical workshops	welders' equipment - practical training on using the electric arc to weld different surfaces - protractor and tape welding - equipment used in each type - types of electrodes and how to install them - practical training on using each type	practical application	

15-13	12	Mechanical workshops	argon gas - doing exercises for ,welding artifacts using argon gas welding - spot welding - MIC doing exercises	practical application	

Course evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as .daily preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources	
Required textbooks (methodology, if any)	
n references (sources)	Assembly filings / technical methods and tools used, written by / Engelbert Gretz, translated by Engineer Reda Mahmoud Salman The Technical Reference for Foremen of Lathe Workers and Technical Workers S/Votin Darmir Printing and Publishing House, Moscow The Basic Rules in the Production and Design of Castings by Clarence Merck, translated by Dr. Muhammad Zaki Mounir, published in association with the Vanklin Institute of .Industry – New York
Recommended supporting books and references (scientific journals, reports….)	
Electronic references, Internet sites	

Course Name
Arabic
Course Code
AU 30
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance form
My presence
Number of study hours (total)/number of units (total()
study hours, (2) hours per week / number of units)2((30)
Name of the course administrator (if more than one name is mentioned)
Dr. Haider Adnan
objectives Course

ectives of the study subject	. Knowing the basics of Arabic grammar
Teaching and learning strategies	
strategy	lecture Discussion and dialogue Brainstorming

Course structure					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Class discussion
1	2	Introduction to . linguistic errors	Introduction to . linguistic errors	My presence	Monthly and final exams
2	2	Knowing the rules for writing extended and . short alifs	Rules for writing extended and short . alifs	My presence	
4-3	2	Knowing the dha and . dha	. Dhaad and Dhaa	My presence	
5	2	Knowing how to write . the hamza	.Writing the hamza	My presence	
6	2	Knowing punctuation . marks	.punctuation marks	My presence	
7	2	Knowing the noun .and verb	.Noun and verb	My presence	
8	2	.Knowing the effects	. Effects	My presence	
9	2	Know the number	. the number	My presence	Monthly and final exams

11-10	4	Knowledge of linguistic errors . applications	Linguistic errors . . applications	My presence	
12	2	Knowledge of Nun .and Tanween	.Nun and Tanween	My presence	
13	2	Knowing the meanings of the . preposition	Meanings of the .preposition	My presence	
14	2	Knowledge of the language of administrative .discourse	The language of administrative .discourse	My presence	
15	2	Knowledge of models of administrative .correspondence	Examples of administrative .correspondence	My presence	

Course evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as .daily preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources	
Required textbooks (methodology, if any)	
n references (sources)	Clear dictation / Abdul Majeed Al- . Naim / Dahham Al-Kayyal, Dar Al-Mutanabbi Library, Baghdad, 1987, 6th .edition Lessons in language and grammar / .Ismail Hammoud Atwan and others Arabic language for the third . .intermediate grade / Fatima Nazim Al-Atabi General Arabic language for non-specialized departments Inspired by Arabic literature / Haval Muhammad Amin

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

Course description form / second stage/ Year system

Program skills chart															
Learning outcomes required from the programme															
Year / level	Course Code	Course Name	Essential or ?optional	Knowledge				Skills				Value			
				A1	A2	A3	A4	B 1	B2	B3	B4	C1	C 2	C3	C4
2023-2024 The second phase	AU40	Auto mechanics	Basic	/	/	/	/	/	/	/	/	/	/	/	/
	AU 41	Internal combustion engines	Basic												
2023-2024 The second phase	AU 42	A car body	Basic												
	AU 43	Car maintenance)2(	Basic												
2023-2024 The second phase	AU 44	Electric cars)2(	Basic												
	AU 45	Modern automotive technology	Basic												
2023-2024 The second phase	AU 46	Administration, occupational safety and stations	Basic												
	AU 47	Industrial drawing	my choice												
2023-2024 The second phase	AU 48	Calculator applications	Basic												
2023-2024 The second phase	AU 49	English language -2	Basic												

2023-2024 The second phase	AU 50	Professional ethics	my choice													
2023-2024 The second phase	AU 51	Baath crimes	my choice													

Course Name
Auto mechanics
Course Code
AU40
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total)
study hours (2) hours per week / number of units)2((60)
Name of the course administrator (if more than one name is mentioned)
Majid Faraj Hajim albashaqmuaan@mtu.edu.iq
objectives Course

Objectives of the study subject	To study and learn the forces and stresses affected on the automobile, the various system design and the power transmitted from the different components

Teaching and learning strategies		
The strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method Linking theoretical engineering concepts with the practical aspect	

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	2	Engine performance. The total resistances that confront the movement of the vehicle	Automotive performance, the total resistance affecting car motion	Theoretical lecture	Theoretical and practical tests and fault diagnosis
2	2	Pull–out effort	Traction effort	Theoretical lecture	
4-3	2	Examples of pulling effort	Traction effort examples	a lecture theory	
6-5	2	Types of gear boxes, reduction ratios between them, and total reduction ratio	Gears, types gearing system, motion between two gears, selecting the best gear ratio, drive axle gear ratio, overall gear ratio examples	a lecture theory	
7	2	Types of loading chairs and calculations of sliding chairs	Bearing types, calculations and design of sliding bearing	a lecture theory	
8	2	Columns, their types and column calculations	Shafts, types, calculation and design of the shafts	a lecture theory	
–9 –10 11	2	Clutch types and calculations of transferred capacity	Clutch, types, design, power transmitted, calculation	a lecture theory	
-12 – 13 14	2	Types of belts and transported capacity calculations By her	Belts. Types, system types, calculation of power transmitted from flat and v. type.	a lecture theory	

-15 -16 -17 18	2	Types of positions and the load transferred during positioning	Brakes, types of systems function distance, declaration, load transfer during brake, braking force on front and rear wheel, wheel piston diameter, all these calculation based on disc and shoes brake type.	a lecture theory	
-19 20	2	Types of suspension systems and calculations of leaf and helical springs	Suspension system types advantages and disadvantages Calculation of leaf and coil spring	Theoretical lecture	
-21 22	2	Types of accidents: elastic and plastic deformation, calculation of deformation energy, types of collision, positive and negative safety	Definition and types of accident, Accidents with the change in speed, Plastic and elastic deformation, Equation of momentum, kinetic energy, energy deformation, Front and rear collisions, Collision barrier, Distribution of power in the body of the car during collision, Active and passive safety	Theoretical lecture	
-23 24	2	Rotation system types, calculations of rotation radii	Steering system, calculations, types	a lecture theory	
-25 26	2	Rollover and sliding speed	Overturning and sliding speed	a lecture theory	
27	2	Types of pistons, calculation of thermal stress and .tensile stress	Piston, types, calculation of thermal and tensile stress	a lecture theory	
28	2	Types of crankshaft, calculation of torsion angle, tensile and thermal stress	Crankshaft, types, calculation of thermal and tensile stress	a lecture theory	

-29 30	2	Studying different designs for types of traction in vehicles	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)	a lecture theory	

application with the theory For vocabulary application Be the operation Vocabulary: Note different Examination Devices on

Course evaluation

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

Learning and teaching resources

Required textbooks (methodology, if any)

n references (sources)	1-Theory of ground vehicles, J.Y.WONG , second edition 2-Theory of Machines, RSKHURMI, 2004
Recommended supporting books and references (….scientific journals, reports)	e institute's library for additional curricula ources tomotive chassis by BM Heidt . eory of machines by T. Berau .
Electronic references, Internet sites	

Course Name
Internal combustion engines
Course Code
AU41
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total)
study hours (4) hours per week / number of units)8((120)
Name of the course administrator (if more than one name is mentioned)
Shaalan ghanan Aflug shaalan.ghanam@mtu.edu.iq
objectives Course

Objectives of the study subject	Preparing the student and introducing him to the types of combustion engines, the basics of their operation, and studying their performance parameters and their relationship to each other for all types of internal combustion engines, diesel and gasoline

Teaching and learning strategies		
strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method ıking theoretical engineering concepts with the practical aspect	

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	8	engine classification	Basic engine nomenclature, engine classification	Theoretical lecture And practical	Theoretical and practical tests and fault diagnosis
2	8	four-stroke cycle	Four-stroke cycle spark - ignition engine and its components, four-stroke cycle compression ignition engine and its components	Theoretical and practical lecture	
3	8	Spark ignition-compression Ignition	Two stroke cycle spark ignition engine, Two - stroke cycle compression Ignition engine, comparison of two stroke and .four stroke engine	a lecture Theory and practical	
4,5	8	Valves timing	Valves timing for 4-stroke cycle spark - ignition engine and four- -stroke cycle compression ignition engine, variable valve timing [WT, CVVT]. Valves timing for 2-stroke cycle spark - ignition engine and 2-stroke cycle compression - ignition engine, Scavenging systems for 2-stroke .engines	a lecture theory And practical	
6-7-8	8	Engine performance	Engine performance and testing, performance parameters for 4-stroke engine and 2-stroke engine, basic measurements indicators. Illustration examples	a lecture theory And practical	
9-10-11	8	Performance of SI Engine	Performance of SI Engine, performance of CI Engine, effect of variable compression ratio on engine performance. Effect of strength mixture (Fr) on engine performance factors	a lecture theory And practical	

12	8	Engine heat balance	Engine heat balance sheet. Illustration examples	a lecture theory And practical	
13	8	Combustion equations, heat of combustion	Combustion equations, heat of combustion - Theoretical flame temperature - chemical equilibrium and dissociation - Theories of Combustion - Pre-flame reactions - Reaction rates. Combustion in SI Engines, stages of combustion in SI Engine	a lecture theory And practical	
14	8	Effect of engine variable on stages	Effect of engine variable on stages of combustion in S. 1.Engine . Flame structure and speed, Cycle by cycle variations, Lean burn combustion, .stratified charge combustion systems	a lecture theory And practical	
15,16	8	Detonation or knocking in SI Engine	Detonation or knocking in SI Engine, what, why, control, & octane, effects of detonation, Control of duration, pre- .ignition, effect of pre-ignition on engine	a lecture theory And practical	
17	8	engine combustion chamber designs	SI engine combustion chamber designs	a lecture theory And practical	
18,19	8	Gasoline - air mixtures	Carburetion in SI Engine, Gasoline - air mixtures. Mixture requirements - Mixture configuration - Carburetor, Chokes. Simple carburetor calculation of the Air-fuel ratio for a simple carburetor, design of carburetor, venture size, fixed venturi and variable venturi and constant ,vacuum types	a lecture theory And practical	
20	8	Injection fuel systems	Injection fuel systems in SI engine, Pneumatic and Electronic Fuel Injection Systems, Ignition systems requirements, Timing Systems, breaker mechanism. Gasoline Injection - TBI, MPFI, GDI and Air-assisted Injection, Engine Management System, Mono point, Multi point, Direct injection systems and Air	a lecture theory And practical	

			assisted systems - Principles and Features, Idle speed, lambda, knock and .spark timing control		
21	8	Sensors for Air flow	Sensors for Air flow, Pressure, Temperature, Speed, Exhaust Oxygen, Knock and Position in engine management systems - Principle of operation, construction and .characteristics	a lecture theory And practical	
22	8	Combustion in C.I engines	Combustion in C. I engines, stages of combustion in CI engine, variable affecting, stages of combustion	a lecture theory And practical	
23		Diesel knock	Diesel knock methods of controlling diesel knock		
24		CI Engine combustion chamber	CI Engine combustion chamber designs, Stages of combustion, vaporization of fuel droplets and spray formation, air motion, ,swirl measurement		
25		Fuel injection in CI Engine	Fuel injection in CI Engine, requirements of diesel injection system, types of injection systems, types of fuel injectors and nozzles		
26		fuels for SI Engines	Fuel, specification, fuels for SI Engines, Octane number requirement, additives, fuels for CI Engine, cetane number requirement, additives, alternate fuels. Fuel - Quality standards for Automotive Engines - Lead free gasoline, low and ultra-low sulfur diesels, LPG, CNG, Alcohols, Biodiesels, FT diesels, hydrogen		
27		supercharging	Effect of supercharging on performance . of the engine supercharging types, Turbo- and supercharging, operation of turbocharger. Intercooling, Practical considerations for SI and Cl engines		
28		Engine friction	Engine friction and lubrication, additives		
29,30		Pollutants	Pollutants from SI Engine, effect of engine maintenance on exhaust emissions, emissions control. Diesel emissions, diesel smoke and its control comparison diesel and gasoline emissions, Current trends in engine technology - Multi- valving ,		

			Tuned manifolding , camless valve gearing, EGR, Part-load charge stratification in GDI systems, Current materials and production processes for engine components , Hybrid electric vehicular piston engines and their characteristics. Noise pollution, EMISSION MEASUREMENT, EMISSION CONTROL, Engine Design modifications, fuel modification, evaporative emission control, EGR, air injection, thermal reactors, Water Injection, catalytic converters,. Common rail injection system, Particular traps, Nox converters, SCR systems. GDI and .HCCI concepts		

Note: The practical vocabulary is an application of the theoretical vocabulary

Course evaluation

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

Learning and teaching resources

Required textbooks (methodology, if any)

Main references (sources)	**Bason & Whit "internal combustion – engine" vol. 1 & vol.2 1979** **PL Ballaney "internal combustion – –engine" 1980** **Chorles FT "the internal combustion – engine in theory & practice" 1986** **Thermodynamics & heat engines – "thermal engineering** **A course in internal combustion engines – ML Mathur** **Internal combustion engine – fundamentals, by: John Heywood pub:: .McGraw-Hill (1988)- USA** **7-Introduction to internal combustion engines, by: Richard Stone, pub.: .USA – (1992)MacMillan** **Internal combustion engines Applied –88** **Thermodynamics, by: Colin R Ferguson and**

	Allan T. Kirkpatrick, pub.: John Wiley & / .sons - 2001
Recommended supporting books and references (….scientific journals, reports)	
Electronic references, Internet sites	

Course Name

Car bodies
Course Code
AU42
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total)
hours, (3) hours per week - number of units)3(90
Name of the course administrator (if more than one name is mentioned)
Yousif Hussein Ghailan yousif-hsean@mtu.edu.iq
Course objectives

Objectives of the study subject	The student is introduced to the theoretical foundations of engineering materials used in the manufacture of the car body and the maintenance and repair of symptoms and defects that occur in the body and structure of the car

Teaching and learning strategies

The strategy	lecture Discussion and speaking Brainstorming Use views Linking theoretical engineering oncepts with the practical aspect	

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	3		An overview of the development of the automobile industry	Theoretical lectures and practical training	Theoretical and practical tests
2	3		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	Theoretical lectures and practical training	
4-3	3		Engineering materials used in the manufacture of the car body and body, ferrous materials, non-ferrous materials (types And specifications	Theoretical lectures and practical training	
5	3		Properties of engineering materials (physical properties, mechanical properties, brittleness, (mechanical tests	Theoretical lectures and practical training	
6	3		Stress and simple emotion	Theoretical lectures and practical training	

7	3		Direct or vertical stress, direct strain	Theoretical lectures and practical training	
8	3		Elastic materials - Hooke's law	Theoretical lectures and practical training	
9	3		Modulus of elasticity - Young's modulus	Theoretical lectures and practical training	
10	3		Tensile test (stress-strain (diagram	Theoretical lectures and practical training	
11	3		Relatively simple transformation problems	Theoretical lectures and practical training	
12	3		Arc welding, arc initiation and arc re-initiation	Theoretical lectures and practical training	
13	3		Electrical resistance welding spot welding -	Theoretical lectures and practical training	
-14 15	3		Gas welding - heating sources, oxy equipment Acetylene - oxy torch Acetylene - types of torches - types of acetylene	Theoretical lectures and practical training	

			generators. Flame backflow preventer . Orcon welding		
16	3		Fastening with rivets, types of fastening (compositions, combinations): - Comparison between fastening by welding and fastening with rivets (advantages and problems). Spiral bonding Advantages and disadvantages of spiral bonding	Theoretical lectures and practical training	
17	3		Synthetic fibers - Carbon fibers, their physical properties - Their uses in the automotive industry	Theoretical lectures and practical training	
-18 19	3		Robots , their types, the advantages of robots on humans, and their various uses in the automobile industry	Theoretical lectures and practical training	
-20 21	3		Forming, cold forging and forging processes, types, hot forging and forging processes,. Designs for the structure of the basics of air flow, steps for creating a new model of the car, the first mock-up in life size	Theoretical lectures and practical training	
22	3		Study the designs of the vehicle structure	Theoretical lectures and practical training	
23	3		Corrosion and the effect of weather and other factors on the car body	Theoretical lectures and practical training	
24	3		Painting the car, preparing the body and parts to be painted, cleaning them, and	Theoretical lectures and	

			removing corroded and .damaged parts	practical training	
25	3		Phosphorescent , basic dye, putty and polishing works	Theoretical lectures and practical training	
26	3		Basic dyes, their types, methods of mixing colors, matching colors (according (to the tables	Theoretical lectures and practical training	
27	3		Dyeing method in production laboratories	Theoretical lectures and practical training	
28	3		Final polishing and finishing operations	Theoretical lectures and practical training	
29	3		Paint problems, their diagnosis, methods of treating them, and causes	Theoretical lectures and practical training	
30	3		Auto glass, types of front, rear and side glass repair and installation	Theoretical lectures and practical training	
Course evaluation					
Note: The practical vocabulary is an application of the theoretical vocabulary					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as .daily preparation, daily, oral, monthly, written exams, reports, etc					
Learning and teaching resources					

Required textbooks (methodology, if any)	
n references (sources)	
Recommended supporting books and references scientific journals,) (….reports	The institute's library for additional curricula resources
Electronic references, Internet sites	

Course Name
Automotive maintenance2
Course Code
AU43
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
Available attendance
My presence
Number of study hours (total)/number of units (total()
study hours (8) hours per week / number of units)16((240)
Name of the course administrator (if more than one name is mentioned)
Majid Faraj Hajim albashaqmuaan@mtu.edu.iq
objectives Course

Objectives of the study subject	that Understands requester parts And malfunctions clutch , group Transfer the movement , the hub Front , the hub Back , Positions And devices conditioning Air in The Car And a group Guidance And driving
Teaching and learning strategies	

The strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method inking theoretical engineering ncepts with the practical aspect	

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
2-1	8	The student understands the lesson	clutch , principle a job clutch Disc Frictional , Species Clutches Single , Multiple Discs , ingredients clutch tablet Friction - disc Pressure - chair Emancipation (Methods stabilizing Lining - friction , Species screws Installation features clutch Dhu Pulsating membranous , to organize clearances , Methods receipt the movement clutch, key safety clutch , maintenance clutch , drain the system Hydraulic	Theoretical lecture And practical	Theoretical and practical tests and fault diagnosis
5-4-3	8	requester Understands the lesson	group Transport , Importance group Transport , Pedigree Gears to Determination , parts group Transport Types : sliding , Harmonic . Detail to explain Speed . device Compatibility . Box Gears Cars Clouds With wheels Front . Trouble group Transport And knock Reveal about her And its maintenance . Keys And the tentacles . contraindications Leak the oil in Box Gears	Theoretical and practical lecture	

8-7-6	8	requester Understands the lesson	group Transport Self (- automatic) system Delivery With liquid , Converted Determination , installation group Transport Subjectivity , road her job , system the control With a group Transport Self , Malfunctions the group And knock Reveal about her And its maintenance . principle a job Converted Determination . comparison between system Delivery With liquid And transformed Determination Links Switch Speeds . Manual . to examine color liquid Transport . to . examine pump the oil	a lecture Theory and practical	
10-9	8	requester Understands the lesson	column Administration , Its types Hollow And the solid , Links the university , Installed And its work , Trouble column Administration , Methods Reveal about her , Cars paying off Quadruple And maintenance matic 4 cars The link Fixed the speed , can transformation the movement For cars paying . off Quadruple	a lecture theory And practical	
12-11	8	requester Understands the lesson	the hub Back , to explain For its parts different , road her job Its malfunctions , the hub Back And knock Reveal about her And its maintenance . Clearance Back between Gear Annular And the gear Little , theory Gears Differentiation , closing Gears Differentiation , system Transfer Ability The controller on her Electronically . Species . Columns Midterm	a lecture theory And practical	

14-13	8	requester Understands the lesson	Systems Hydraulic introduction in Systems Liquids The tanker For capacity - fluids Hydraulics Functions, And types And - properties And the choice And the application And characteristics And symbols Graphical the components Hydraulic - pumps and triggers / triggers And valves And keys And filters And contraindications Infusion and equipment And others from Accessories	a lecture theory And practical	
16-15	8	requester Understands the lesson	comment , Its types The Independent And other Independent (comment Complete Independence . comment Hydraulic The controller on him Electronically - Comment Antenna	a lecture theory And practical	
18-17	8	requester Understands the lesson	group Leadership , ingredients the group , Species Boxes Guidance . system Guidance Self Pedigree discount Different . system Guidance Hydraulic system Guidance Electric . In the newspaper Toothed . Guidance With wheels The four . maintenance system Guidance . Diagnosis Malfunctions system . Guidance	a lecture theory And practical	
19	8	requester Understands the lesson	Springs Its types are leafy and spiral Columns The one deterrent Shocks , Trouble Springs And knock Reveal about her And its maintenance	a lecture theory And practical	
20	8	requester Understands the lesson	Corners Wheels He went Wheels	a lecture theory And practical	

24-23-22-21	8	requester Understands the lesson	Situation . Species Positions Hypothesis And the pallet And hydraulic And aerobic (system system | ABS an idea against Lock , system against Slipping during Acceleration . system Governorate on Distances Automatically . Friction And stop , Indicator consumption Situation Disc, Situation Disc Back liquid Positions Positions Aerobic Positions electrical . transition Pregnancy Sensors maintenance system Situation	a lecture theory And practical	
25	8	requester Understands the lesson	Tires Inflatables , Its types , Its measurements , impact pressure Air on Tires , the frame Metal Its types Its properties , maintenance And knock Repair the frame Rubber . Arbitrage Wheels Indicators Eat Naksha | the frame, the frame the reserve the talk . System Monitoring Electronic To press the frame	a lecture theory And practical	
26	8	requester Understands the lesson	pumps injection Diesel , Its types . engine Diesel . The runs The four control Electronic for engine Diesel . maintenance engine diesel	a lecture theory And practical	
28-27	8	requester Understands the lesson	an idea on the cars electrical And cars energy olfactory an idea on the cars Girlfriend For the environment from hand | pollution And alternatives Fuel . Cars Hybrid	a lecture theory And practical	
30-29	8	requester Understands the lesson	air conditioner Air , ingredients Air conditioner , road currency , Its malfunctions And knock Maintain it	a lecture theory And practical	

Note: The practical vocabulary is an application of the theoretical vocabulary	
Course evaluation- 272	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources - 273	
Required textbooks (methodology, if any)	
n references (sources)	AUTOMOTIVE TECHNOLOGY, Jack Erjavec , 5th Edition, 2009 https://www.mechaniclub.com/
Recommended supporting books and references (….scientific journals, reports)	The institute's library for additional curricula resources Transfer Ability , Enterprise the public For training Technical And the professional , the queen Arabic Saudi Arabia Maintenance the cars , written by child surgeo ,Ministry education High And search Scientific , ,body education technical
Electronic references, Internet sites	

Course Name
Electric cars
Course Code
AU44
Semester/ year
first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total)
hours of study , 3 hours per week, number of units: 3 90
Name of the course administrator (if more than one name is mentioned)
Khaled Abdel Hussein Hafez

yhamed529@gmail.com	
objectives Course	
Objectives of the study subject	**education requester And prepare it To find out Use Devices electrical And devices e And a system Injection unless Electronic And the sensors electrical And electronic For cars Included reading Circles electrical For those ingredients In all Its types And diagnosis Malfunctions**
Teaching and learning strategies	
The strategy	**The lecture** **Discussion and dialogue** **Brainstorming** **Use the presentation method** **Connect engineering concepts** **Theory with the practical side**

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
2-1	**3**		**Similar Connectors , Crystal The diode , Circle Reward To crystallize The diode , amendment half The wave by The diode , efficiency Edit For half The wave , amendment Wave perfect by The diode Number 2 which It's called (socket middle) , amendment Wave perfect by The bridge , efficiency Edit With the arch, The zener diode , Circle Reward For the zler diode , The zener diode Sticky For voltage**	**Theoretical practical + lecture**	**Theoretical practical + test**
3	**3**		**and type (...) , (...P) Transistor , Type theory the job , ingredients Transistor , Properties , comparison between Types The other , Symbols Transistor , Transistor He works As a magnifier For three Species It is (the rule Common**	**Lecture Theoretical practical +**	**a test Theoretical practical +**

			and (CE) and radiant Common(CB) (CC) collector Subscriber		
5-4	3		which He (FET) Species Transistor Type and(JFET) swears to all From principle a job Transistor ,(MOSFET) type as amplifier went out , JFET Properties Transistor And applications , MOSFET principle a job Transistor circuit type Reward For transistor Ability Applications Transistor ,(SCR) Type (SCR)	Lecture Theoretical practical +	a test Theoretical practical +
7-6	3		transformers And devices Measurement transformers energy , Specifications the , public , classification Transformers energy Active And negativity , transformers resistant , Effort , measurement Download , transformers Directing differential) , transformers energy Hittite , transformers energy the flow , transformers degree the heat , Thermistor Thermal , Pyrometers	Lecture Theoretical practical +	a test Theoretical practical +
8	3		How ,IC Circles Integrated manufacturing Circles Integrated , job Magnifier For operations	Lecture Theoretical practical +	a test Theoretical practical +
10-9	3		Processes the basic For one control in the engine Signal Digital - Signal Analog - components lonliness (ECU) unit Control control in Engine (regulator Effort Amplifiers Processors - microprocessors - memory - transistors Ability - Sensitive Triggers) and their functions - signals Dakhla from Sensors And the outside to Triggers from lonliness Control - circuits control Open And closed	Lecture Theoretical practical +	a test Theoretical practical +
-11 13	3		identification The sensitive one Its function - types - sensitive the pressure Absolute With a complex Drag - sensitive Mass flow Air - sensitive degree heat Air sensitive degree heat Engine - sensitive - situation valve Throttle - sensitive Speed rotation Engine - sensitive Knock - delicate Oxygen --- etc	Lecture Theoretical practical +	a test Theoretical practical +
-14 15	3		identification Triggers – Triggers lonliness Control - sprays Injection system Speed Bearing - valve Preparation Rotate Gases exhaust valve Conjugation Fumes Gases Engine - pump Fuel - Control in employment System shipping Air Jabri	Lecture Theoretical practical +	a test Theoretical practical +

16	3		system Ignition Electronic - its components road her job Electrically (angle - rest corner presentation Spark) and relationship her job with Rest ingredients lonliness control	Lecture Theoretical practical +	a test Theoretical practical +
17- 19	3		Circles electrical For different ingredients Systems control Employment Cold - control quickly No Pregnancy control in Enrichment Mixture - system to cut Fuel when Speed High | very control in Enrichment mixture when acceleration)	Lecture Theoretical practical +	a test Theoretical practical +
20- 22	3		Circles electrical For different Systems Employment e For the engine For MOTRONIC - SystemMOTRONIC Maps Pregnancy with Speed the MONO PFI engine with corner Injection System injections can study Systems Other	Lecture Theoretical practical +	a test Theoretical practical +
23	3		Identify on Maps electrical And components painting Numbers	Lecture Theoretical practical +	a test Theoretical practical +
24	3		Identify on road link And he worked Sensors Alert when Return to Back	Lecture Theoretical practical +	a test Theoretical practical +
25	3		Identify And read Maps electrical Integrated For models from the cars	Lecture Theoretical practical +	a test Theoretical practical +
26	3		system EGR control With gases exhaust reset Rotate Gases Exhaust . system Adapter catalyst	Lecture Theoretical practical +	a test Theoretical practical +
27	3		is an FUEL CELL TECHNOLOGY cell idea on her job And apply it in the cars Modern	Lecture Theoretical practical +	a test Theoretical practical +
28- 30	3		reading Malfunctions by System Codes And reform Problems And cleaning memory from Codes Stocked With it	Lecture Theoretical practical +	a test Theoretical practical +
Course evaluation - 283					
Note: The practical vocabulary is an application of the theoretical vocabulary					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc					
Learning and teaching resources					
Required textbooks (methodology, if any)					
n references (sources)					

Recommended supporting books and references scientific journals,) (….reports	e institute's library for additional curricula resources
Electronic references, Internet sites	

Course Name
Modern automotive technology
Code Course
AU45
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total)
dy hours (4) hours per week / number of units)8((120)
Name of the course administrator (if more than one name is mentioned
Sajid Hanoun Sharhan sajed.hanoun@mtu.edu.iq
objectives Course

Objectives of the study subject	Introducing the student to the modern systems found in modern cars - their operation, features, and malfunctions

Teaching and learning strategies

strategy	lecture Discussion and dialogue Brainstorming se presentation and presentation method Linking theoretical engineering concepts with the practical aspect	

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
2-1	8	The student understands the lesson	Reviewing devices for examining modern automobile systems and learning about inspection methods that keep pace with the progress made in automotive technology	Theoretical lecture And practical	Theoretical and practical tests and fault diagnosis
5-3	8	requester Understands the lesson	Electronic control system for opening and closing engine valves	Theoretical and practical lecture	
7-6	8	requester Understands the lesson	Electronic control system for the transmission control transmission module	a lecture Theory and practical	
10-8	8	requester Understands the lesson	- ABS anti- lock braking system Collision prevention ECU system, brake pad damage (discs) sensor system	a lecture theory And practical	
11	8	requester Understands the lesson	Traction control system for cars traction control unit	a lecture theory And practical	
-12 13	8	requester Understands the lesson	unit for Automatic stability control cars	a lecture theory And practical	

14	8	requester Understands the lesson	cruise control unit Automated	a lecture theory And practical	
15	8	requester Understands the lesson	unitPower assisted steering control	a lecture theory And practical	
-16 17	8	requester Understands the lesson	Smart suspension system	a lecture theory And practical	
18	8	requester Understands the lesson	navigation system for the - Auto car	a lecture theory And practical	
19	8	requester Understands the lesson	control unit for the carbody	a lecture theory And practical	
20	8	requester Understands the lesson	Air bag system	a lecture theory And practical	
-21 22	8	requester Understands the lesson	and technological exhaust systems catalyst	a lecture theory And practical	
-23 25	8	requester Understands the lesson	Hybrid vehicle technology and fuel cell uses	a lecture theory And practical	
26	8	requester Understands the lesson	Smart light systems - tire pressure measuring system	a lecture theory And practical	
27			Various sensor systems, dead (.angle, wrong overtaking, etc		
28			Automatic parking system		
-29 30			A review of what modern car technology has reached		

Course evaluation - 296	
Note: The practical vocabulary is an application of the theoretical vocabulary	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources- 297	
Required textbooks (methodology, if any)	
Main references (sources)	
commended supporting books and references scientific journals, reports)	
Electronic references, Internet sites	

Course Name	
Administration, occupational safety and stations	
Course Code	
AU46	
Semester/ year	
The first semester of the academic year 2023/2024	
Date this description was prepared	
2024/2/7	
A. Available attendance forms	
My presence	
Number of study hours (total)/number of units (total	
hours, 2 hours per week. Number of units: 2 60	
Name of the course administrator (if more than one name is mentioned	
Ahmed Muhammad Reda ahmed-mohammed@mtu.edu.iq	
objectives Course	
ectives of the dy subject	Providing a clear, comprehensive and integrated picture of the various functions and operations of the industrial organization and of the fundamental principles and foundations of management that lead to

	effective coordination and efficient control of the mutual relationships between the various functions and introducing the student to how to design model workshops where cars are serviced and how to calculate the costs for those stations.
Teaching and learning strategies	
strategy	The lecture Discussion and dialogue Brainstorming Use the presentation method

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
2-1	2	History of industrial security	Brief Historical on Security Industrial And its impact on Efficiency Productivity And rules Security Industrial	theoretical lecture	Theoretical test
2	2	Industrial security regulations	Elements the basic in Organizations Security Industrial - needs And procedures The sponsor To prevent Occurrence The incident And reduce it - control Engineering on the factory	theoretical lecture	Theoretical test
3	2	Accident prevention	rules And organize General For prevention from Accidents - prevention from Workshops	theoretical lecture	Theoretical test

			Mechanical with regards For the number Handmade		
4	2	Protective equipment Personal	equipment protection Personality – fires And combat it And knock control With it	Lecture theoretical	Theoretical test
5	2	Management concepts	Management – concepts Administration	theoretical lecture	Theoretical test
6	2	management jobs	Jobs Administrative – wages And its types	theoretical lecture	Theoretical test
7	2	Administrative levels	Levels Administrative – organization Industrial the structure Organizational For the institution Industrial	Lecture theoretical	a test theoretical
8	2	Worker and machine diagram	study the movement . –) a plan The Worker And the machine) – study measurement the time	Lecture theoretical	a test theoretical
9	2	Procurement steps	the control on Materials – Purchases – Steps the purchase	Lecture theoretical	a test theoretical
10	2	Control of stores	Warehouses – their types – and inventory Warehouses – control on Storage	Lecture theoretical	a test theoretical
11	2	Types of managers	Leadership And the manager Competent – types Managers – signs Administration Good – properties Recipes Managers	Lecture theoretical	a test theoretical
12	2	Industrial relations	relations Industrial – Relations General – Jobs relations the public And industrial	Lecture theoretical	a test theoretical
13	2	Maintenance concept	Concept Maintenance the public . maintenance Factory – impact Maintenance on Ways Economic	Lecture theoretical	a test theoretical

14	2	Types of maintenance	Species Maintenance – costs Maintenance – planning Operations Maintenance	Lecture theoretical	a test theoretical
15	2	Maintenance goals	Goals Maintenance Its types from where the site And work	Lecture theoretical	a test theoretical
16	2	Types of stations	identification The station . Species stations And to explain detailed on stations	Lecture theoretical	a test theoretical
17	2	Visit a typical car maintenance station	Visit for station Typical for maintenance the cars	Lecture theoretical	Write a report about the visit
18	2	Maintenance and repair station	Sections the service different in station Maintenance And reform the cars the service The real one	Lecture theoretical	a test theoretical
19	2	Heavy service departments	Sections the service Heavy And the works electrical And works Structures And to dye And polishing etc . .	Lecture theoretical	a test theoretical
20	2	Administration area calculation	account space Administration And an attitude the cars And a hall the offer And the store	Lecture theoretical	a test theoretical
21	2	Labor calculation for each department	account Employment And calculation needs all to divide to Laborers And calculation the number Total For workers	Lecture theoretical	a test theoretical
22	2	Direct and indirect costs	to explain complete on meaning Costs Direct And other Direct	Lecture theoretical	a test theoretical
23	2	Measurement and foundations	to explain complete on Assay And the foundations) which Depends on her in Extract any Indexation	Lecture theoretical	a test theoretical

24	2	Accommodation assessment calculation	How account Indexation Overnight stay the cars in The station	Lecture theoretical	a test theoretical
25	2	Auto repair benchmarking	Indexation To fix the cars	Lecture theoretical	a test theoretical
26	2	Passenger transport assay	Indexation Let's say Passengers by the cars	Lecture theoretical	a test theoretical
27	2	Car sales pricing	How situation Price To sell car Used	Lecture theoretical	a test theoretical
28	2	Discussing student reports	a report on One Threads Previous And discuss it In a way Totals or Single For students	Lecture theoretical	a test theoretical
29	2	Film about workshop design	films Scientific on design Workshops Modern	Lecture theoretical	a test theoretical
30	2	Drawing a model of a service station	fee Workshops Typical for stations the service Dependent on The foundations Scientific Modern So	Lecture theoretical	a test theoretical

Course evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources	
Required textbooks (methodology, if any)	
n references (sources)	Erasman : The importance of industrial engineering in the - 1 . universities of the Arab world, 1986 Dr. Ali Abdul Majeed Abdo: Practical principles of management and organization, Dar Al-Nahda Al-Arabiya 3- Operations management problems and node is by John and Son. Mohieddin Abbas Al-Azhari: Purchasing Management - Dar - Al-Fikr Al-Arabi, Cairo 1977 5- Henry Albert: principles of management, John Wiley. NY 1111 Dr. Ali Abdul Majeed Abdo: Scientific Principles of - . Administration and Organization, Dar Al-Nahda Al-Arabi, 1972
Recommended supporting books and references	e institute's library for additional curricula resources

scientific journals,) (…reports	
Electronic references, Internet sites	

Course Name
Industrial drawing
Course Code
AU47
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total)
hours, 3 hours per week / number of units 3 90
Name of the course administrator (if more than one name is mentioned)
Yousif Hussein Ghailan yousif-hsean@mtu.edu.iq
objectives Course

Objectives of the study subject	Gain the knowledge necessary to read technical drawings, know symbols, engineering terminology, standard specifications and draw The simple and complex assembled mechanical parts that are most encountered in the student's practical life

Teaching and learning strategies

The strategy	**lecture** **Discussion and speaking** • **A practical application of drawing in the AutoCAD program** on the computer • **Use views** • **Practical exercises for industrial drawing on the computer**

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
2-1	3		A general review of first grade topics: geometric lines, projections, sections, and dimensioning	Theoretical lectures and practical training	Theoretical and practical tests
4-3	3		Methods of fastening using screws, types of screws, types of nuts, with a drawing	Theoretical lectures and practical training	
6-5	3		Fastening using threads, their types, uses, drawing an assembly drawing	Theoretical lectures and practical training	
8-7	3		Connection by welding, welding symbols, assembly plate drawing with welding symbols	Theoretical lectures and practical training	
10-9	3		Fastening by rivet, shapes of rivet nails, types of fastening by rivet, drawing an assembly plate	Theoretical lectures and practical training	

11	3		Application board for segmentation and assembly of mechanical crane	Theoretical lectures and practical training	
12	3		Springs, their types, uses, drawing of a compression spring	Theoretical lectures and practical training	
13	3		Drawing of an application board for exhaust valve segmentation and assembly	Theoretical lectures and practical training	
14	3		Coupling column connections (types), application drawing	Theoretical lectures and practical training	
15	3		Clutches , their types and uses, with an applied drawing	Theoretical lectures and practical training	
16	3		(Bearing) Curlsi beauty Drawing of an assembly plate for a friction bearing	Theoretical lectures and practical training	
17	3		(Rollers & Ball Rollers types and Bearing) specifications, along with a drawing of an assembly plate for a column on which .multiple rollers are installed	Theoretical lectures and practical training	
-18 19	3		Pulley & Pulleys and belts their types and uses, Belts, with two drawings for assembling parts containing conveyor wheels of different . types	Theoretical lectures and practical training	

-20 21	3		types, straight (Gears) Gears basic Spur gears gears definitions, a drawing of the spur gear with an assembly plate for engaging the spur gear	Theoretical lectures and practical training	
-22 23	3		(Bevel gears Bevel gears basic definitions with a drawing of an assembly plate for engaging the bevel gear	Theoretical lectures and practical training	
-24 25	3		Cams Cams and accessories their types and & followers, uses. Drawing two paintings of different types of cams	Theoretical lectures and practical training	
-26 27	3		Valves, their types and uses, drawing an applied drawing	Theoretical lectures and practical training	
-28 30	3		Drawing assembly and detailed paintings for a number of machine parts and car engines	Theoretical lectures and practical training	

Course evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as .daily preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources	
Required textbooks (methodology, if any)	
n references (sources)	drawing : Abd al-Rasul al-Khafaf 1- Technical Drawing A booklet for the refresher program specializing in industrial drawing
Recommended supporting books and	e institute's library for additional curricula resources

references (scientific (….journals, reports	
Electronic references, Internet sites	

Course Name
Calculator applications
urse Code
AU48
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
A. Available attendance forms
My presence
Number of study hours (total)/number of units (total)
(6) hours per week / number of units (3) ,study hours (90)
Name of the course administrator (if more than one name is mentioned)
Aziz Alwan Hamzah Alwan aziz.alwan@mtu.edu.iq
objectives Course

Objectives of the article Scholarship	Introducing the student to electronic computers and their uses in solving problems related to the specialty And it is done Domains various in the computer use on Able requester And it is Employment System on Identify the computer components, Performed by that And tasks And its importance Excel and program Desktop Applied and programs, And its accessories . AutoCAD
Teaching and learning strategies	

The strategy	lecture Discussion And dialogue Storming Mental Use road the offer And introductory link Concepts Engineering the . theory with Connectivity with the side Practical	

Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
+2+13	9	Calculator applications	its types - the and The concept of networks its -the Internet - concept of the Internet operation - description of the main screen And its components - How to connect to the Taking advantage - (Web) World Wide Web -Yahoo. Goggle ,of famous search engines Learn about ways to search for and access information	Theoretical + practical	Test + practical
-6-5-4-9-8-710	21	Calculator applications	program. Learn about the concept of Excel the program: its benefits, specifications, features, methods of operation, and getting to know the screen The main page and its components, and it contains various menus . and effective tools The concept of the cell, basic data types and how to enter them Close the , Worksheet How to Save Workbook program and close the file Open the saved file, enter data, perform simple calculations, and learn how to set or format | Data and its structure 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 Sum, Min, Max < count, ,program such as	Theoretical + practical	Test + practical

			and other useful related SQRT Average statistical functions by provided Learn about the editing process the program, how to copy data or move data, and learn about the concept of copying mathematical operations, as well as the .absolute cells andrelative cells concept of Controlling cell width: changing its style and .format through the use of formatting tools how to convert digital and Dealing with charts and textual data into charts of various types Learn .Chart Wizard command through the how to make 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	3	Calculator applications	(Polar program - getting to know - lineAuto CAD Relative - Absolute (- Arc Multiline - pline - point - on the program's different working circle) environment for the screen Menus - Screen - Scroll Bars - Tool Bars - Properties	Theoretical + practical	Test + practical
12	3	Calculator applications	Prepare a drawing sheet - Open a new file - Storage Snap- Grid- Drawing Units- Limits as, Save Save	Theoretical + practical	Test + practical
-13 15-14	9	Calculator applications	Learn about chart drawing commands	Theoretical + practical	Test + practical
−16 −17 18	9	Calculator applications	commands Learn about editing Mirror - Move - Copy - Offset	Theoretical + practical	Test + practical
19	3	Calculator applications	Osnap Fine drawing	Theoretical + practical	Test + practical
20	3	Calculator applications	dimensions Add	Theoretical + practical	Test + practical

21	3	Calculator applications	sectorsText and Hatch Add	Theoretical + practical	Test + practical
22	3	Calculator applications	Layer - - Control drawing specifications Properties - linetypes		
23	3	Calculator applications	Attributesand Blocks		
24	3	Calculator applications	Block - wblock - explode - divide		
26-25	3	Calculator applications	Introduction to 3D drawing Ucs - Vports - Elev - thickness		
28-27	6	Calculator applications	3D surfaces Create		
30-29	6	Calculator applications	D3 Solids Create 3D objects		

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

- Learning and teaching resources .4

Required textbooks (methodology, if any)

Main references (sources)	-2
Recommended supporting books and references (…scientific journals, reports)	The institute's library for additional curricula resources Scholarship

Electronic references, Internet sites	

Course Name	
English	
Course Code	
AU49	
Semester/ year	
The first semester of the academic year 2023/2024	
Date this description was prepared	
2024/2/7	
Available attendance form	
My presence	
Number of study hours (total)/number of units (total)	
study hours, (2) hours per week / number of units)2((30)	
Name of the course administrator (if more than one name is mentioned	
Qais Hussein Hassan qaiahussen@mtu.edu.iq	
Course objectives	
ectives of the y subject	The course works to provide the student with practical skills and abilities by adopting the idea of repairing or building an integrated cooling device while transferring the theoretical and applied information he studied to a tangible .practical reality
Teaching and learning strategies	
strategy	lecture Discussion and dialogue Brainstorming Use presentation and presentation method Connecting theoretical engineering concepts with the practical aspect

Course structure					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	2	The student understands the lesson	Tenses. Questions. Jobs. Writing an informal letter	Theoretical lecture	Theoretical lectures
2	2		Present tense, have/have got		
3	2		Things in the house. Writing-linking words		
4	2		Past tense. Past continuous, have + noun, writing a story 1		
5	2	The student understands the lesson	Count and uncount nouns. Expressions of quantity. Articles, plural nouns, clothes. Writing-forms		
6	2		Verb patterns. Future forms. Words that go together. Writing a postcard		
7	2		What…. Like?. Comparatives and superlatives. Adjectives. Writing-describing a place		
8	2		Present perfect. Men and women. Writing a biography		
9	2		Have (got) to, should and most. Job descriptions. Writing a formal letter 1		
10	2		Conditional clauses. Time clauses. Preposition + word. Writing-discussing ideas		
11	2		Verb patterns, used to. Infinitive. Rhymes. Writing-formal and informal letters 1		
12	2		The passive. Words with more than one meaning. Writing a review		
13	2		Second conditional, might, phrasal verbs. Writing a story 2		
14	2		Present perfect Simple & continuous. Words that sound		

			the same. Expressions in letter writing		
15	**2**		**Past perfect. Reported statements. Words that are often confused. Writing a story 3**		

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

Learning and teaching resources	
Required textbooks (methodology, if any)	
n references (sources)	**Newheadway Plus, Pre-Intermediate Student's book by John & Liz Soars Press. Oxford** ***Newheadway Plus, Pre-Intermediate Workbook by John & Liz Soars Press. Oxford**
Recommended supporting books and references (scientific (….journals, reports	institute's library for additional curricula resources
Electronic references, Internet sites	

Course Name

Professional ethics
Course Code
AU50
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
Available attendance forms
My presence
umber of study hours (total)/number of units (total
study hours, (2) hours per week / number of units)2((30)
Name of the course administrator (if more than one name is mentioned)
Batoul Hussein Maidi Amaylyaaylya30@gmail.com
Course objectives

bjectives of the study subject	The course aims to introduce students of technical institutes to professional ethics according to their technical specialization, and to provide them with professional ethical rules that enhance their commitment to them, in their expected field of .work after graduation Specific objectives: These are set by subject teachers (as behavioral objectives) .within the framework of the lesson plan at the single lecture level
Teaching and learning strategies	
The strategy	lecture Discussion and dialogue Brainstorming e presentation and presentation method nnecting theoretical engineering concepts with the practical aspect

Course structure					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the first and the second	2	The student understands the lesson	Ethics – Unit)1(• The concept of morality and its . origin . General rules of ethics .Sources of ethics .Moral values The importance of morals for the individual . and society	Theoretical lecture	Theoretical tests and brainstorming
the third	2		Work and – Unit)2(profession Work and its .importance .Work behaviors .Concept of profession .Definition of profession The difference between the concept of work , .profession and craft Standards upon which the profession must be .based		
the fourth	2		Professional – Unit)3(Ethics What is professional ?ethics returns are not The to positive To adhere .professional ethics Characteristics of work .ethics Characteristics of .professional ethics Steps for the acceptable level of professional . ethics		
	2		Unit (4) - Values and professional ethics .honesty		

Fifth and sixth			**.Honesty .Advice .Justice .good behaviour . work of Mastery**		
Seventh and eighth	**2**	**The student understands the lesson**	**the Patterns – Unit)5(in Ethical Others behavior the profession Administrative .corruption Unethical administrative .behavior Definition of administrative . corruption Types of administrative .corruption . Bribery The concept of .bribery .Types of bribery The difference between a gift .and a bribe The reasons and motives behind .bribery .Cheating The concept of .cheating The nature of .fraud at work Appearances in Cheating performance . Function**	**Theoretical lecture**	
The ninth and tenth	**2**		**Unit (6) - Means and methods of consolidating the values of professional ethics Method of establishing .professional ethics Levels of construction Ethics consolidation and . Occupation**		

			and methods of Means Ethics consolidation .Occupation Things that must be taken into consideration in formulating the ethical code of the .profession to promote ethical How behavior at work according to (Kreitner) . .(And Kenicki		
eleventh twelveth Thirteenth The fourth and fifteenth	2		Ethics of practicing engineering professions Specially for technical) (institutes of technology Unit (7) - Ethics of the engineering profession The importance of .technology in society Artistic and . technological ethics a Conditions for . professional technician of a Characteristics . professional technician the trade union Items of regulations for practicing the profession . The Islamic view of professional ethics , compared to the Western and American . view		

Course evaluation
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc
Learning and teaching resources
Required textbooks (methodology, if any)
n references (sources) — It is included in the list of Arab and foreign sources at the end of the lectures

Recommended supporting books and references (….scientific journals, reports)	institute's library for additional curricula resources
Electronic references, Internet sites	

Course Name
The crimes of the Baath regime in Iraq
Course Code
AU51
Semester/ year
The first semester of the academic year 2023/2024
Date this description was prepared
2024/2/7
Available attendance forms
My presence
Number of study hours (total)/number of units (total
study hours, (2) hours per week / number of units)2((60)
Name of the course administrator (if more than one name is mentioned)
Batoul Hussein Maidi Amaylyaaylya30@gmail.com
Course objectives

Objectives of the study subject	Teaching about the crimes committed by the Baath Party

Teaching and learning strategies	
strategy	lecture Discussion And dialogue Storming Mental

Course structure					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the first and the second	2		Introduction: The crimes of the Baath Party regime Crimes of the Baath regime according to the Iraqi Supreme Criminal Court Law in 2005	theoretical	theoretical
Third and fourth	2		The concept of crimes and their types. Definition of crime linguistically and terminologically		
Fifth and sixth	2		Crime departments. The crimes . of the Baath regime according to the documentation of the Law of the Supreme Iraqi Criminal Court in 2005 AD		
Seventh and eighth	2		Types of international crimes Decisions issued by the Supreme Criminal Court		
The ninth and tenth	2		Psychological and social crimes and their effects, and the most prominent violations of the Baathist regime in Iraq		
Eleventh and twelfth	2		Psychological crimes Mechanisms of psychological crimes		
The thirteenth and fourteenth	2		The effects of psychological crimes and social crimes		
Fifteenth and sixteenth	2		Militarization of society. The Baathist regime's position on religion		
Seventeen and eighteen	2		Violations of Iraqi laws Pictures of human rights violations and crimes of power		
nineteenth and twentieth	2		Some decisions regarding political and military violations of the Baath regime, places of		

			prisons and detention of the Baath regime		
Twenty-one and twenty-two	2		Environmental crimes of the Baath regime in Iraq, military and radiological pollution, and mine explosions		
Twenty-third and twenty-fourth	2		Destruction of cities and villages (scorched earth policy) Draining of the marshes		
Twenty-fifth and twenty-sixth	2		Razing palm groves, trees and crops		
Twenty-seventh and twenty-eighth	2		Mass grave crimes, genocide grave events committed by the Baathist regime in Iraq		
Twenty-nine and thirty-nine	2		Iraq Chronological classification of genocide graves in Iraq for the period - AD 3619 AD 2003		

Course evaluation

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

Learning and teaching resources

Required textbooks (methodology, if any)

Main references (sources)	
Recommended supporting books and references scientific) journals, (…reports	Ihsan Hindi, Laws of Military Occupation, Rights and Protection of the Civilian Population in Occupied Territories, Administration. Politics, Damascus, 1972 Archives of the Political Prisoners Foundation. - Archives of the Martyrs . Foundation Archives of the Iraqi Center for Documentation of Extremist Crimes at the Abbasid . Holy Shrine. Official website of the United Nations Ayman Abdel Aziz Salama, The International Responsibility for Committing the Crime of Genocide, 1st edition, Dar Al-Ulum for Publishing and Distribution, Cairo, .2006 Soldier Abdul Malik, The Criminal Encyclopedia, Part Three, Arab Heritage Revival use, Beirut, 1990. 8 - Hassan Al-Khayyat, The Geography of Marshes and Swamps in Southern Iraq, International Press, Cairo, 1975 - Hussein Aliwi Al-Zayadi, Dr. Abbas Atiya Al-Quraishi, Environmental Crimes of the Baath Regime in Iraq, Publisher: The Iraqi Center for Documentation of Extremist Crimes, Dar Al-Kafeel Press, first edition, Holy Karbala, 2023
Electronic references, Internet sites	