Ministry education High And search Scientific device Supervision And the calendar Scientific circle a guarantee the quality And accreditation Academic to divide Accreditation

Academic program and course

2024

The Introduction:

The educational program is considered a coordinated and organized package of academic courses that include procedures and experiences organized in the form of academic vocabulary, the main purpose of which is to build and refine the skills of graduates, making them qualified to meet the requirements of the labor market. It is reviewed and evaluated annually through internal or external audit procedures and programs such as the external examiner program.

The description of the academic program provides a brief summary of the main features of the program and its courses, indicating the skills that students are working to acquire based on the objectives of the academic program. The importance of this description is evident because it represents the cornerstone of obtaining program accreditation, and the teaching staff participates in writing it under the supervision of the scientific committees in the scientific departments.

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

In this area, we can only emphasize the importance of writing descriptions of academic programs and courses to ensure the smooth conduct of the educational process.

Concepts and terminology:

Description of the academic program: 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: It provides a necessary summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he has 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 an advanced, inspiring, motivating, realistic and applicable program.

Program message: It briefly explains the objectives and activities necessary to achieve them, and also identifies the program's development paths and directions.

Program Goals: 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/study subjects included in the academic program according to the approved learning system (semester, annual, Bologna track), whether it is a requirement (ministry, university, college, or scientific department), along with the number of study units.

Learning Outcomes: A compatible set of knowledge, skills, and values that the student has acquired after successfully completing the academic program. The learning outcomes for each course must be determined in a way that achieves the program objectives.

Teaching and learning strategies: They are the strategies used by the faculty member to develop the student's teaching and learning, and they are plans that

are followed to reach the learning goals. That is, it describes all curricular and extracurricular activities to achieve the learning outcomes of the programme.

Academic program description form

: University name: Al-Furat Al-Awsat Technical University

Scientific Department: Power Mechanics Department

Name of the academic or professional program: Department of Power Mechanics

Name of final certificate: Technical diploma

Academic system: annual

:Date the description was prepared :-/-/2024

: File filling date 1/4/2024

: the signature

Name of scientific assistant : Nadia Abdel hadi abdel amir Al :Nnaimi

:the date

the signature

Name of department head Imad habeeb

the date 6/5/2024

Check the file before

Division of Quality Assurance and University Performance

Name of the Director of the Quality Assurance and University :Performance Division :khlood mudafar

the date

the signature

Authentication of the Dean

1. See the program

Remember to see the program as stated in the university prospectus and website.

2. Program message

State the program's mission as stated in the university's bulletin and website.

3. Program Goals

The Mechanics Department aims to graduate technical cadres who will be a link between the specialist and the skilled worker. The department prepares and prepares the graduate and provides him with theoretical, applied and scientific information to be able to carry out the work assigned to him.

4. Program accreditation

ABET Engineering majors

5. Other external influences

Public sector and private sector

6. Program structure

comments *	percentage	Study unit	Number of courses	Program structure
	40%	56 units	The first10	Enterprise requirements
	60%	70 alone	the second13	

				College requirements
				Department requirements
				summer training
				Other

* Notes may include whether the course is core or elective.

7. Program description

Credit hours		Name of the course or course	Course or course code	Year/level
practical	**theoretical**			

8. Expected learning outcomes of the programme

	Knowledge
Statement of learning outcomes1	Learning Outcomes1
	Skills
Statement of learning outcomes2	Learning Outcomes2
Statement of learning outcomes3	Learning Outcomes3
	Value
Statement of learning outcomes4	Learning Outcomes4
Statement of learning outcomes5	Learning Outcomes5

9. Teaching and learning strategies

Lecture, workshop, laboratory, methodological training, summer training

10. Evaluation methods

Oral examinations, written examinations, semester examinations, final examinations, daily evaluation

11. education institution

Faculty members

Preparing the teaching staff		Special requirements/skills (if any)		Specialization		Scientific rank
lecturer	angel			private	general	
	/			Mechanical	Mechanical	Assistant Professor Doctor
	/			IOT	computer Sciences	Teacher
	/			Conditioning and cooling	Mechanical	Teaching assistant

Professional development

Orienting new faculty members

Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels.

Professional development for faculty members

Briefly describe the academic and professional development plan and arrangements for faculty members such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12. Acceptance standard

(Developing regulations related to admission to the college or institute, whether central admission or others mentioned)

13. **The most important sources of information about the program**
Remember briefly.

14. Program development plan

Program skills chart															
Outputs Learning required from the program															
Value				Skills				Knowledge				Essential or optional?	name The decision	Code The decision	the year / the level
C4	C3	C2	C1	B4	B3	B2	B1	a4	a3	a2	a1				
/	/	/	/	/	/	/	/	/	/	/	/	Basic	Mechanical		The first
/	/	/	/	/	/	/	/	/	/	/	/	Basic	Mechanical		the second

Please situation Signal in Squares the interview For outputs Learning Individuality from the program Submissive For evaluation

Course description form

١. name The decision	
Internal combustion engines	
٢. Code The decision	
٣. the chapter / the year	
annual	
٤. date Preparation this the description	
٥. Available attendance forms	
Halls , laboratories , workshops	
٦. Number of study hours (total)/number of units (total)	
4 hours Weekly /8 units	
٧. Name of the course administrator (if more than one name is mentioned)	
Name: Email : A.M.D. Mohannad Hamza Hussein	
٨. Course objectives	
Objectives of the study subject : He is requester able on Identify on Species Engines Combustion And Its parts And the difference in what Between them from where her job And establish that the job And study Transactions the performance for every Type And factors Influential on That Transactions	
٩.	
The strategy	ategies And methods Interactive that Make from Learner A pivot For the process Educational

Course structure.

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
verbal + My class	lecture And laboratory	design Engines Combustion Internal	get to know on principle a job Motors Combustion Internal	4	١- 4
verbal + My class	lecture And laboratory	issions Harmful tgoing from Engines Combustion Internal	to get to know on Methods formation emissions inside Rooms Combustion	4	5- 8
verbal + My class	lecture And laboratory	performance Motors d its laws And knock the account	to get to know on Methods account bility Immunity And determination The brake And rate consumption Fuel	4	9-12
verbal + My class	lecture And laboratory	maintenance Engines Combustion Internal	get to know on Roads the duty r followers To rease performance engine	4	13-16
verbal + My class	lecture And laboratory	vernorate on nvironment from issions Outgoing from Engines the cars	get to know on road the duty llow her To reduce emissions rmful from the engine	4	17-20
verbal + My class	lecture And laboratory	ergy Sustainable And renewable	get to know on Species Fuel ernative For engines that orking With a spark And compression	4	21-24
verbal + My class	lecture And laboratory	Engines Quad e runs And duality The runs	get to know on Species Engines	4	25-30

١. Course evaluation

distribution Class from 100 on according to mission Assigned With it requester like Preparation Daily And exams Daily And the quarterly And editorial And reports ....etc	
Learning and teaching resources .١	
the book Systematic	quired textbooks (methodology, if any)
the book Systematic + Sources The Internet	Main references (sources)
. fair Mahmoud Hassan , Dr. Qahtan behind Khazraji rinciples Production Edition the second university Baghdad Printing press education High for a year 1987	Recommended supporting books and references (scientific journals, reports….)
the library Default Iraqi , location Wikipedia	Electronic references, Internet sites

Course description form

١. name The decision	
Electric cars1	
٢. Code The decision	
٣. the chapter / the year	
annual	
٤. date Preparation this the description	
٥. Available attendance forms	
Halls , laboratories , workshops	
٦. Number of study hours (total)/number of units (total)	
3 hours Weekly /6 units	
٧. Name of the course administrator (if more than one name is mentioned)	
the name: on Improver Hamidi	
٨. Course objectives	
Objectives 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	
٩.	
The strategy	Strategies And methods Interactive that Make from Learner A pivot For the process Educational

Course structure.

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
verbal + My class	a lecture And laboratory	introduction on General Electric the cars	introduction on principles the public Electrical the cars / Type nutrition electrical / Sources Main electrical For the car / Type electricity used in The Car And also introduction on the theory Magnetism	3	1
verbal + My class	a lecture And laboratory	System trition in The Car	System nutrition in The Car / Circle electrical Closed / Law Oh / Ability electrical / Issues Mathematical	3	2
verbal + My class	a lecture And laboratory	laws Kirchhoff the first And the second	ws Kirchhoff the first And the second / Issues Sports / group Definitions	3	3
verbal + My class	a lecture And laboratory	Species Circles electrical	Species Circles electrical (to relate Resistors) / successive / Parallelism / mixed / Issues Sports	3	4
verbal + My class	a lecture And laboratory	sources ergy in The Car	sources energy in The Car Include (Battery/types Batteries / ingredients Batteries / Methods Shipping For all Types	3	5
verbal + My class	a lecture And laboratory	Solutions used For types All three For batteries	Solutions used For types All three For batteries /Methods Interactions Chemical / Devices used To check Solutions / Methods Maintenance / measurement density Solution	3	6
verbal + My class	a lecture And laboratory	link sources energy	link sources energy (batteries) in the department electrical With three Species / link Sources on straight / Parallelism / Mixed / features Connectivity for every condition	3	7
verbal + My class	a lecture	account value	Issues Sports To calculate value Result Final For a source energy in	3	8

	And laboratory	Result Final For a source energy in Circle electrical	Circle electrical		
verbal + My class	a lecture And laboratory	idea neral on on e current Alternating	an idea General on on the current Alternating /Definitions Private By current Alternating And inference in any part He works in The Car	3	9
verbal + My class	a lecture And laboratory	Magnetism d its properties	Magnetism /Properties the public For magnetism /Definitions For types Magnets /lines Powers Magnetism	3	10-12
verbal + My class	a lecture And laboratory	circle ipping in The Car	circle Shipping in The Car / an idea General on Generator the current Continuous / Its parts / Its components /principle currency / chart General For the department electrical For the generator	3	13-14
verbal + My class	a lecture And laboratory	circle Shipping For a generator the current Alternating	circle Shipping For a generator the current Alternating / Its parts / Its components /principle the job / chart General For the department electrical For the generator	3	15-16
verbal + My class	a lecture And laboratory	engine Initiator the movement (predecessor)	engine Initiator the movement (The predecessor) / its parts / Its components /principle Currency/Chart General For the department electrical For the engine	3	17-18
verbal + My class	a lecture And laboratory	Ignition system, first generation	First generation ignition system (regular) / parts / working principle / general diagram of the system's electrical circuit	3	19-20

verbal + My class	a lecture And laboratory	General diagram of the electrical circuit of a candle Mug	Mug candles / Parts / Working principle / Maintenance and inspection / General diagram of the mug candle electrical circuit	3	21
verbal + My class	a lecture And laboratory	Main, side and interior lighting system	Main, side and interior lighting system / components / working principle / general plan of the systems	3	22-23
verbal + My class	a lecture And laboratory	Auxiliary devices in the car	Auxiliary devices in the car (fuel gauge / oil pressure gauge)	3	24-25
verbal + My class	a lecture And laboratory	The electrical circuit to control car doors and windows	The electrical circuit to control car doors and windows	3	26
verbal + My class	a lecture And laboratory	Car air conditioning and heating devices	Car air conditioning and heating devices	3	27
verbal + My class	a lecture And laboratory	Glass wiper device	Windshield wiper device/fuel pump (electrical circuits)	3	28
verbal + My class	a lecture And laboratory	Electrical circuit for audio and video	Electrical circuit for audio and video audio/early warning system against theft		29-30

		audio			

Course description form

١. name The decision
Electric cars2
٢. Code The decision
٣. the chapter / the year
annual
٤. date Preparation this the description
٥. Available attendance forms
Halls , laboratories , workshops
٦. Number of study hours (total)/number of units (total)
3 hours Weekly /6 units
٧. Name of the course administrator (if more than one name is mentioned)
the name: on Improver Hamidi
٨. Course objectives
ojectives of the study subject :Teaching the student and preparing him to know the use of electrical appliances, electronic devices, the electronic injection system, and the electrical and electronic sensors of cars, cluding reading the electrical circuits of these components of all kinds and diagnosing faults.
٩.

The strategy	ategies And methods Interactive that Make from Learner A pivot For the process Educational

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
verbal + My class	a lecture And laboratory	Semiconductors	Semiconductors - the diode crystal - the equivalent circuit of the diode crystal - half-wave modulation using a diode - the efficiency of modulation with the bridge, the zener diode, the equivalent circuit of the zener diode, the zener diode, a voltage stabilizer	3	1-2
verbal + My class	a lecture And laboratory	Transistor	Transistor typepnp and npn type, working theory, transistor components, characteristics, comparison between other types, transistor symbols, the transistor works as an amplifier for three types	3	3
verbal + My class	a lecture And laboratory	Types of transistors	Types of transistors - the working principle of the transistorJFET as an output amplifier - transistor properties and applications, operating principle of the MOSFET type transistor	3	4-5
verbal + My class	a lecture And laboratory	Transformers and measuring devices	Transformers and measuring devices - power transformers - general specifications - classification of active and passive power transformers, resistive transformers, voltage,	3	6-7

			load measurement, differential output transformers (LVDT, inductive power transformers, flow power transformers, temperature transformers, thermal thermistors, thermal pyrometers		
verbal + My class	a lecture And laboratory	integrated Circuits	Integrated Circuits - How to manufacture integrated circuits - Function of process amplifier	3	8
verbal + My class	a lecture And laboratory	Basic operations of the engine control unit	Basic operations of the engine control unit - digital signal - analog signal - control unitECU components	3	9-10
verbal + My class	a lecture And laboratory	Definition of the sensor and its function	Definition of the sensor, its function - types - absolute pressure sensor in the intake manifold - mass air flow sensor - air temperature sensor - engine temperature sensor - throttle valve position sensor	3	11-13
verbal + My class	a lecture And laboratory	Definition of triggers	Definition of actuators - control unit actuators - injection nozzles - no-load speed system - exhaust gas recirculation valve	3	14-15
verbal + My class	a lecture And laboratory	Electronic ignition system	The electronic ignition system - its components - how it works electrically and its relationship with the rest of the components of the control unit	3	16
verbal + My class	a lecture And laborat	Electrical circuits for various	Electrical circuits for various components of the control systems - cold start - control of no-load speed - control of	3	17-19

	ory	components of control systems	mixture enrichment - fuel cut-off system at very high speeds		
verbal + My class	a lecture And laboratory	Electrical circuits for various electronic engine operating systems	Electrical circuits for various electronic engine operating systems - systemMOTRONIC-MONO-MOTRONIC SYSTEM, maps load with engine speed with injection angle	3	20-22
verbal + My class	a lecture And laboratory	Electrical diagrams and instrument panel components	Identify electrical diagrams and instrument panel components	3	23
verbal + My class	a lecture And laboratory	How to connect and make sensors	Learn how to connect and operate reversing warning sensors	3	24
verbal + My class	a lecture And laboratory	Read integrated electrical maps	Recognizing and reading integrated electrical maps for models of cars	3	25
verbal + My class	a lecture And laboratory	Exhaust gas control system,EGR	Exhaust gas control system,EGR Exhaust gas recirculation - catalytic converter system	3	26
verbal + My class	a lecture And laboratory	Fuel cell idea about its operation	The fuel cell is an idea about its operation and its applications in modern cars	3	27

		and applications			
verbal + My class	a lecture And laboratory	Reading faults using the code system	Reading faults using the code system, fixing problems, and clearing the memory of the codes stored in it	3	28-30

The rapporteur described the crimes of the Baath Party in Iraq

١. name Decision:
crimes party Resurrection in Iraq
٢. Code The decision
٣. the chapter / the year :
2023-2024 AD
٤. date Preparation this the description :
2-14-2024 AD
٥. Available attendance forms
٦. Number of study hours (total)/number of units (total):
The number of hours (30) and the number of units (2).
٧. Name of the course administrator (if more than one name is mentioned):
Name: Email : Dr.. Ahmed Ghani
٨. Course objectives

Objectives of the study subject	**oducing the crimes of the Baath regime committed against the Iraqi people.** **ding out some facts that are hidden from he Iraqi people regarding their crimes.** **dents' insight into the period of time ceding the Baathist regime's misleading media attacks.**

٩. Teaching and learning strategies

The strategy	- rategies And methods Interactive that Make m Learner A pivot For the process Educational

Course structure.

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
est diagnostic Oral	Methods Interactive	oncept Crimes nd its sections	Identify on Terminology Incoming in Subject Scholarship	1	the first

Discussions Collective	Methods Interactive	ctions Crimes	examining on Sections Crimes And discrimination While While Between them	1	the second
Discussions Collective	Methods Interactive	documentation crimes Resurrection	amining a job The court Criminal Iraqi	1	the third
Discussions Collective	Methods Interactive	cies Crimes International	mining on Crimes International And its types	1	the fourth
Discussions Collective	Methods Interactive	Decisions going from court Criminal Iraqi	mining on Decisions Outgoing from The Mahama Criminal Iraqi	1	Fifth
Discussions Collective	Methods Interactive	Crimes Mental	examining on Concept Crimes Mental	1	VI
Discussions Collective	Methods Interactive	hanics Crimes Mental	Identify on Mechanics Crimes Mental	1	Seventh
Discussions Collective	Methods Interactive	antiquities Crimes Mental	ntify on Archaeology Negativity For crimes Mental	1	VIII
Discussions Collective	Methods Interactive	Crimes Social	Identify on Crimes Social	1	Ninth
Discussions Collective	Methods Interactive	tarization the society	mining on Techniques Militarization the society	1	The tenth
Discussions Collective	Methods Interactive	ition the tem Baathist from Debt	ntify on His attitudes Negativity from Debt	1	atheistic ten
Discussions Collective	Methods Interactive	ations Laws The Iraqi	mining on Violations For the laws Iraqi	1	he second ten
Discussions Collective	Methods Interactive	to from ations rights Human	mining on crimes Authority Really The people	1	the third ten
Discussions Collective	Methods Interactive	ne decisions Violations tical And the tary To sleep Baathist	mining on some Violations Political And the military	1	the fourth ten
Discussions Collective	Methods Interactive	es Prisons And detention	mining on number from Places Detention For the system Baathist	1	Fifth ten
Discussions Collective	Methods Interactive	Crimes Environmental	mining perhaps Crimes Environmental	1	VI ten
Discussions Collective	Methods Interactive	ution The like And radiological	Identify on Species pollution	1	Seventh ten
Discussions Collective	Methods Interactive	cy the earth Scorched	mining antiquities Destruction For cities	1	VIII ten
Discussions Collective	Methods Interactive	rying Marshes	Identify on Policy drying Marshes	1	Ninth ten
Discussions Collective	Methods Interactive	scraping hards And trees	examining on Damages Agricultural	1	The twentieth
Discussions Collective	Methods Interactive	crimes Cemeteries Collective	mining on Cemeteries Collective Really The people	1	eistic And the twenty
Discussions	Methods	Sequence	mining on date Cemeteries Collective	1	second And

Collective	Interactive	eline For aves Collective	For the system		the twenty
Discussions Collective	Methods Interactive	graveyard Martyrs peace	mining on some Sources Related With the material Scholarship	1	third And the twenty
Discussions Collective	Methods Interactive	veyard Khan Quarter	mining on some Sources Related With material Scholarship graveyard Khan Quarter	1	fourth And the twenty
Discussions Collective	Methods Interactive	aveyard Zarqa	mining on some Sources Related With the material Scholarship	1	h And the twenty
torial - writing Reports		ily - Quarterly	Tests	4	And the twenty

Course evaluation .١١	
distribution Class from 100 on according to mission Assigned With it requester like Preparation Daily And exams Daily And oral And monthly And editorial And reports ....etc	
Learning and teaching resources .١٢	
Required textbooks (methodology, if any)	crimes System Resurrection in Iraq For universities Governmental And eligibility
Main references (sources)	
Recommended supporting books and references (scientific journals, reports….)	
Electronic references, Internet sites	

Course description mathematics

١. name The decision	
mathematics	
٢. Code The decision	
٣. the chapter / the year	
2023−2024	
٤. date Preparation this the description	
4−30−2024	
٥. Available attendance forms	
My presence	
٦. Number of study hours (total)/number of units (total)	
n(2), h(0), h(4)	
٧. Name of the course administrator (if more than one name is mentioned)	
Name: Montazer Abdel Jawad	
٨. Course objectives	
Objectives of the study subject	Introducing the student to the use of mathematics in other scientific topics and increasing his ability to think logically when solving exercises, as well as increasing his ability to develop and how to link data with his information to obtain a solution to the problem.
٩. Teaching and learning strategies	

	The strategy

Course structure.

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
	Explanation on the board	Matrices	Operations on matrices and determinants	2	the first and the second
Test for students		Differentiation, algebra of derivatives, multiple functions	Differentiation, algebra of derivatives, multiple functions	2	The third, fourth and fifth
		Trigonometric, logarithmic and exponential functions and their derivatives and implicit functions, chain rule	Trigonometric, logarithmic and exponential functions and their derivatives and implicit functions, chain rule	2	Sixth, seventh and eighth
		Drawing functions, drawing trigonometric functions and maximum and minimum limits.	Drawing functions, drawing trigonometric functions and maximum and minimum limits.	2	The ninth, tenth and eleventh
Test for students		Applications of physical differentiation, velocity and acceleration, and engineering applications of	Applications of physical differentiation, velocity and acceleration, and engineering applications of	2	Twelfth and thirteenth

		differentiation.	differentiation.		
		Integration, laws, and its relationship to differentiation, definite and indefinite integration.	Integration, laws, and its relationship to differentiation, definite and indefinite integration.	**2**	Fourteenth and fifteenth
Test for students		Implicit integration, geometric applications of integration (areas and volumes) and physics	Implicit integration, geometric applications of integration (areas and volumes) and physics	**2**	Sixth, seventh, eighth and ninetee nth
		General methods of integration include substitution and partial integration and the use of exponential and logarithmic partial fractions.	General methods of integration include substitution and partial integration and the use of exponential and logarithmic partial fractions.	**2**	Twenty and twenty-first
Test for students		Discrete, homogeneous and linear differential equations with their various applications.	Discrete, homogeneous and linear differential equations with their various applications.	**2**	The third, fourth, fifth, and twenty-sixth
		Vectors (direct and quantitative multiplication and calculating angles between vectors.	Vectors (direct and quantitative multiplication and calculating angles between vectors.	**2**	Twenty-seventh and twenty-eighth
		Statistics (principles) and probability theory	Statistics (principles) and probability theory	**2**	Twenty-nine and thirty-nine

١. Course evaluation	
distribution Class from 100 on according to mission Assigned With it requester like Preparation Daily And exams Daily And oral And monthly And editorial And reports ....etc 20 theoretical 10 works the year (Duties + Share in the line +Presence and commitment)	
١. Learning and teaching resources	
Schumm's Abstracts Series, Frank Ayers,1977	Required textbooks (methodology, if any)
Schaum Briefs Series	Main references (sources)
athematics books taught to fourth, fifth, and sixth grade students	Recommended supporting books and references (scientific journals, reports….)
aline mathematics lecture sites for institute students	Electronic references, Internet sites

١. Course Name
Thermodynamics
٢. Course Code
٣. Semester/year
2023/2024
٤. The date this description was prepared
6/4/2024
٥. Available attendance forms
My presence
٦. Number of study hours (total)/number of units (total)
60 hours / 4 units
٧. Name of the course administrator (if more than one name is mentioned)
Name: Heba Qassem
٨. Course objectives

Course objectives	- Enabling students to obtain knowledge and understand the meaning of thermodynamics - Enabling students to obtain knowledge and understand the definition of heat and types of systems. - Enabling students to obtain knowledge of the first and second laws of thermodynamics

٩. Teaching and learning strategies	
The strategy	Theoretical lectures and practical experiments

١٠. Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1-3	12	Learn about the properties of thermodynamics	Thermodynamic term - measuring devices - properties - state - processes - cycles - density and specific volume - pressure (gauge, vacuum, absolute).	Lectures	Exam
4-6	12	Gain knowledg	Temperature relationships (Celsius, Kelvin and Rankine scale) - energy - renewable energy - resources	Lectures	Exam

		(solar energy, wind energy, waterfall energy, tidal energy).	e of the subject and perform calculations		
Exam	Lectures	Source of hydrocarbons (oil and gas) - form of energy used in thermodynamics - potential energy - kinetic energy - heat - work. Internal energy flow worked	Gain knowledge of the subject and perform calculations	12	7-9
Exam	Lectures	The first law of thermodynamics - flow system - N flow system - stable - unstable - open - closed. Examples.	Gain knowledge of the subject and perform calculations	4	10
Exam	Lectures	Applications of the first law to the nozzle, diffuser, condenser, evaporator, compressor, heat exchanger (surface, open), turbine, and boiler. Examples.	Gain knowledge of the subject and perform calculations	4	11
Exam	Lectures	Thermodynamic process, stability experiment (pressure, volume, temperature, enthalpy) - multidirectional process - opaque represented on a diagram (PV), (TS), and (PH).	Gain knowledge of the subject and perform	8	12-13

			calculations		
Exam	Lectures	Specific heat, a type of specific heat constant for a gas.	Gain knowledge of the subject and perform calculations	4	14
Exam	Lectures	The second law of thermodynamics, statement of the second law, heat engine, heat pump	Gain knowledge of the subject and perform calculations	4	15

١١. Course evaluation	
10 marks: practical exam 10 marks: In-class activities 10 marks: theoretical exam 60 marks: Final exam (50 theoretical exam/10 marks: practical exam)	
١٢. Learning and teaching resources	
	Required textbooks (methodology, if any)
	Main references (sources)
	Recommended supporting books and references (scientific journals, reports, ...)
	Electronic references, websites

.a Course Name:	
Computer basics	
.b Course Code:	
.c Semester/Year:	
2023-2024	
.d Date this description was prepared:	
2024-4-4	
.e Available attendance forms	
My presence	
.f Number of study hours (total)/number of units (total)	
30 hours / 2 units	
.g Name of the course administrator (if more than one name is mentioned)	
Name: Abbas Abdul Hussein	
.h Course objectives	
Course objectives: The student will gain knowledge in:	• Basic components of a computer • Operating systems (Windows) • The concept of operating systems • Types of operating systems • Operating system features • desktop • Main components of the desktop • Hide, show and arrange icons on the desktop • Change the location of the taskbar • Increase and decrease the size of the taskbar • Change the taskbar properties

• Learn about the most important programsMicrosoft Office	

i. Teaching and learning strategies	
The strategy	Giving theoretical and practical lectures

j. Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	2	definition of computer Hardware and software components	Computer basics	theoretical	Paper test
2	2	A general introduction to the topic of operating systems, their types, versions, and privileges of the operating systemMS- DOS, its history, its importance, evidence and levels of evidence, internal operating commands, external operating commands	Operating systems	Theoretical and practical	Paper test
3-6	8	The Windows operating system is understood, its features, its basic requirements, an overview of its different versions, the main components of the desktop, definition of the concept of an	Windows operating system The main components of the desktop	Theoretical and practical	practical test

			icon, ways to deal with and customize icons on the desktop, a study of the status bar, the task bar, the toolbar, how to modify these bars, getting to know all the desktop icons and their work.		
practical test	Theoretical and practical	Desktop Properties Manage windows on the desktop	Desktop properties Managing windows on the desktop Function description of window elements Arranging open windows Moving within the window Moving the window from one place to another Dealing with the dialog box	2	7
practical test	practical	Desktop Properties Manage windows on the desktop	Reviewing the contents of discs, files, and folders and how to deal with them, running and printing discs, adding programs such as Word or Excel to the start menu, retrieving or deleting files and folders from the recycle bin.	4	8-9
Paper test And my work	Theoretical and practical	Word processor programMicrosoft word	Microsoft Word word processing program. Its purpose is to operate it. Open a	8	10-13

			document file. Create a new document. Toolbars, writing text. Selecting or misleading text. Editing process. Page settings. Print preview, printing.		
Paper test And my work	Theoretical and practical	Word processor programMicrosoft word	Headers and footers Page numbering Inserting time, date, and symbols Character formatting Paragraph formatting Shading strokes Punctuation and punctuation Multi-column text Spelling and grammar	2	14
Paper test And my work	Theoretical and practical	Word processor programMicrosoft word	Create tables and deal with them, insert mathematical equations and how to deal with them, and change the formula as requested	2	15
k. Course evaluation					
20 marks: practical exam 20 degrees: paintings 10 marks: In-class activities 50 marks: Final exam					
l. Learning and teaching resources					

	Required textbooks (methodology, if any)
	Main references (sources)
	Recommended supporting books and references (scientific journals, reports, ...)
	Electronic references, websites

١. Course Name	
English -1	
٢. Course Code	
٣. Semester/year	
2023/2024	
٤. The date this description was prepared	
4/4/2024	
٥. /a/ Available attendance forms	
My presence	
٦. Number of study hours (total)/number of units (total)	
30 hours / 2 units	
٧. Name of the course administrator (if more than one name is mentioned)	
Name: Star Jabbar	
٨. Course objectives	
Course objectives	○ Introducing the student to hearing and perception skills. ○ Introducing the student to speaking skills. ○ Developing the student's awareness of scientific and applied aspects. ○ Teaching the student correct pronunciation. ○ Teaching the student to pronounce English vocabulary correctly. ○ Teaching the student the rules of the English language. ○ Teaching the student understanding and awareness skills in the English language. ○ Teaching the student English speaking skills. ○ Teaching the student the method of dialogue and discussion in the English language

٩. Teaching and learning strategies	
The strategy	Theoretical lectures

١٠. Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	2	Preparing the scientific material for the student and giving him an idea of the curriculum and the prior knowledge expected of him	Introductory lectures on the vocabulary of the English language subject and an introduction to the contents of the course and the scientific foundations of how to correctly employ linguistic information in the book.	Lectures	Exams
2	2	Learn to welcome and introduce yourself	Unit One - Hello	Lectures	Exams
3	2	Learn vocabulary and grammar about the topic with the app	Unit Two–Your World	Lectures	Exams
4	2	Learn vocabulary and grammar about the topic with the app	Unit Three-All About You	Lectures	Exams
5	2	Learn vocabulary and grammar about the topic with the app	Unit Four- Family & Friends	Lectures	Exams
6	2	Learn vocabulary and grammar about the topic with the app	Unit Five-The Way I Live	Lectures	Exams
7	2	Learn vocabulary and grammar about the topic with the app	Unite Six-Every Day	Lectures	Exams
8	2	Learn vocabulary and grammar about the topic with the app	Unite Seven-My Favorite	Lectures	Exams
9	2	Learn vocabulary and grammar about the topic with the	Unit Eight-Where I Live	Lectures	Exams

			app		
Exams	Lectures	Unite Nine-Times past	Learn vocabulary and grammar about the topic with the app	2	10
Exams	Lectures	Unite Ten- We Had a Great Time	Learn vocabulary and grammar about the topic with the app	2	11
Exams	Lectures	Unite Eleven-I Can Do That	Learn vocabulary and grammar about the topic with the app	2	12
Exams	Lectures	Unite Twelve-Please & Thank You	Learn vocabulary and grammar about the topic with the app	2	13
Exams	Lectures	Unite Thirteen-Here & Now	Learn vocabulary and grammar about the topic with the app	2	14
Exams	Lectures	Unite Fourteen-It's Time to Go	Learn vocabulary and grammar about the topic with the app	2	15

١١. Course evaluation	
20 marks: theoretical exam **10 marks: Class activity** **70 marks: Final exam**	
١٢. Learning and teaching resources	
Required textbooks (methodology, if any)	• Beginner Workbook with key Headway Plus • Headway plus
Main references (sources)	
Recommended supporting books and references (scientific journals, reports, ...)	
Electronic references, websites	

Course Name	
computer applications	
Course Code	
MTU27	
Semester/year	
2023/2024	
The date this description was prepared	
4/5/2024	
Available attendance forms	
My presence	
Number of study hours (total)/number of units (total)	
90 hours / 6 units	
Name of the course administrator (if more than one name is mentioned)	
Dr. Ali Ihsan	
Course objectives	
Course objectives	• Introducing the student to the use of different commands on the computer. • Introducing the student to design skills and requirements, both in AutoCAD and Excel. • Dealing with the concept of networksComputer Network • How to prepare tables of quantities, calculations, input and output in the Excel program • How to create a worksheet, adjust it, then design and draw using the AutoCAD program
Teaching and learning strategies	
The strategy	Theoretical lectures and practical application on the computer

Course structure					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**The concept of computer networks, their types and features.**	**Know the types of networks and their features**	**3**	**1**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**The concept of the Internet and how to connect to it. And Internet settings on the computer**	**Understand the working principle of the Internet**	**3**	**2**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**How to connect to the global network (Web) – Taking advantage of the famous search engines Yahoo and Goggle – Identifying ways to search for and access information**	**Understand how to connect a computer to the Internet. How to search for information**	**3**	**3**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Learn about the concept of Excel: its benefits, specifications, features, and ways to operate it**	**Learn to use Excel**	**3**	**4**

Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Getting to know the main screen and its components, as well as its various menus and effective tools.**	**Learn to use Excel**	**3**	**5**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**The concept of the cell, basic data types and how to enter them**	**Learn to use Excel**	**3**	**6**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Learn how to add or delete rows or columns on a business page**	**Learn to use Excel**	**3**	**7**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**How to save a working pageWorkbook, Worksheet with various extensions**	**Learn to use Excel**	**3**	**8**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Perform simple mathematical operations and learn how to adjust, format, and structure data within a single cell or**	**Learn to use Excel**	**3**	**9**

		group of cells			
Practical and theoretical exams	Theoretical lectures and practical application on the computer	Learn about ways to collect data or groups of cells in their different forms, as well as how to sort data	Learn to use Excel	3	10
Practical and theoretical exams	Theoretical lectures and practical application on the computer	Use some of the functions provided by the program such as,Sum, Min, Max < count, SQRT, Average and other useful related statistical functions	Learn to use Excel	3	11
Practical and theoretical exams	Theoretical lectures and practical application on the computer	Learn about the editing processEditing provided by the program, how to copy data or move data and learn about the concept of copying mathematical operations as well as the concept of relative cells and absolute cells.	Learn to use Excel	3	12
Practical and theoretical	Theoretical lectures and	Formatting cells: Change their style and	Learn to use Excel	3	13

exams	**practical application on the computer**	**format by using formatting tools**			
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Dealing with chartsChart and how to convert digital and textual data into charts of various types through the Chart Wizard command and learn about.**	**Learn to use Excel**	**3**	**14**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**How to print digital data or charts**	**Learn to use Excel**	**3**	**15**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Introduction to the programAuto CAD, its features and applications**	**Understand the importance and use of AutoCAD**	**3**	**16**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Getting to know the program's different working environment for the screen and the most important drawing and**	**Learn to draw using AutoCAD**	**3**	**17**

		editing tools			
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Menus – Screen – Scroll Bars – Tool Bars – Properties**	**Learn to use certain features in the program**	**3**	**18**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Prepare a drawing sheet - Open a new file - Drawing boundariesLimits – Drawing Units – Grid – Snap**	**Learn to use certain features in the program**	**3**	**19**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**How to save work with various extensions. How to print charts**	**Learn to use certain features in the program**	**3**	**20**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Learn about different drawing commands.Arc – (Absolute – Relative – Polar) line**	**Learn to use certain features in the program**	**3**	**21**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Multiline – plane – point – circle**	**Learn to use certain features in the program**	**3**	**22**

Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Learn about modification commandsEditing**	**Learn to use certain features in the program**	**3**	**23**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Mirror - Move - Copy - Offset**	**Learn to use certain features in the program**	**3**	**24**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Precision drawingOsnap**	**Learn to use certain features in the program**	**3**	**25**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Add dimensionsDimension**	**Learn to use certain features in the program**	**3**	**26**
Practical and theoretical exams	**Theoretical lectures and practical application on the computer**	**Add textsText and Hatch sectors**	**Learn to use certain features in the program**	**3**	**27**
Practical and theoretical	**Theoretical lectures and**	**Control drawing specificationsLa**	**Learn to use certain features**	**3**	**28**

exams	practical application on the computer	yer - Properties - linetypes -	in the program		
Practical and theoretical exams	Theoretical lectures and practical application on the computer	Blocks and descriptionsBlock&Attributes	Learn to use certain features in the program	3	29
Practical and theoretical exams	Theoretical lectures and practical application on the computer	Measure – Block – wblock – explode – divide	Learn to use certain features in the program	3	30

Course evaluation	
20 marks for the first semester exam (practical and theoretical) 20 marks for the second semester exam (practical and theoretical) 10 marks for evaluating the student's activity within the classroom 50 marks for final exam (practical and theoretical)	
Learning and teaching resources	
Required textbooks (methodology, if any)	
Main references (sources)	Various sources from the Internet
Recommended supporting books and references (scientific journals, reports, ...)	• AutoCAD 2022: By CADArtifex, John Willis, and Sandeep Dogra. • Excel: QuickStart Guide from Beginner to Expert by William Fischer
Electronic references, websites	