

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

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.

<u>Course description</u>: 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.
<u>Program vision</u>: An ambitious picture for the future of the academic program to be

an advanced, inspiring, motivating, realistic and applicable program. <u>Program message:</u>It briefly explains the objectives and activities necessary to achieve them, and also identifies the program's development paths and directions. <u>Program Goals:</u>They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

<u>Curriculum structure:</u>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.

<u>Teaching and learning strategies</u>: 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

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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	Program structure						
			courses							
	40%	56 units	The	Enterprise						
			first10	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	Course or course	Year/level						
		or course	code							
practical	theoreti									
	cal									

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

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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	name The decision	Code The decision	the year / the level		
C4	C3	C2	C1	B4	B3	B2	B1	a4	a3	a2	a1	optional?			
/	/	/	/	/	/	/	/	/	/	/	/	Basic	Mechanica		The first
												Buole	1		
/	/	/	/	/	/	/	/	/	/	/	/	Pacie	Mechanica		the second
												Dasie	1		the second

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

Course description form

name The decision .

Internal combustion engines

Code The decision . ۲

the chapter / the year . "

annual

date Preparation this the description . £

Available attendance forms .°

Halls , laboratories , workshops

Number of study hours (total)/number of units (total) .7

4 hours Weekly /8 units

Name of the course administrator (if more than one name is mentioned) .^V

Name: Email :

A.M.D. Mohannad Hamza Hussein

Course objectives .A

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.

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

	Course structure.									
Evaluation	Learning	Name of the unit	Required learning	hours	the					
method	method	or topic	outcomes		week					
verbal + My class	lecture And laboratory	design Engines Combustion Internal	get to know on principle a job Motors Combustion Internal	4	4 -1					
verbal + My class	lecture And laboratory	nissions 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 lissions 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					
			Course	e evalua	tion .1					

distribution Class from 100 on according to mission	Assigned With it requester like
Preparation Daily And exams Daily And the quarter	orly And editorial And reports etc
Treparation Dany Tina chains Dany Tina the quarte	
Learn	ing and teaching resources .
the book Systematic	uired textbooks (methodology, if
	anv)
	ury)
the book Systematic + Sources The Internet	Main references (sources)
the book systematic + sources the internet	Main references (sources)
fair Mahmand Hassan Dr. Oaktan hakind	D
. fair Manmoud Hassan , Dr. Qantan benind	Recommended supporting books
Khazraji	and references (scientific journals.
rinciples Production Edition the second university	
Baghdad	reports)
Printing press education High for a year 1987	
the library Default Iraqi , location Wikipedia	Electronic references, Internet sites

Course description form

Electric cars1

Code The decision .۲

the chapter / the year . "

annual

date Preparation this the description . £

Available attendance forms

Halls , laboratories , workshops

Number of study hours (total)/number of units (total) .7

3 hours Weekly /6 units

Name of the course administrator (if more than one name is mentioned) .V

the name: on Improver Hamidi

Course objectives

bjectives 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

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ategies	And	methods	Interactive	that M	Iake	from	Learner	А	The strategy
			pivo	t For th	le pro	cess E	ducation	al	

Course structure									
Evaluatio	Learning	Name of the	Required learning outcomes	ho	the				
n method	method	unit or topic		urs	week				
verbal + My class	a lecture And laborat ory	introducti on General on 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 laborat ory	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 laborat ory	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 laborat ory	Species Circles electrical	Species Circles electrical (to relate Resistors) / successive / Parallelism / mixed / Issues Sports	3	4				
verbal + My class	a lecture And laborat ory	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 laborat ory	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 laborat ory	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	Result	Circle electrical		
	laborat	Final For a			
	ory	source			
		energy in			
		Circle			
		electrical			
verbal +	а	idea	an idea General on on the current	3	9
My class	lecture	neral on on	Alternating /Definitions Private By		
	And	e current	current Alternating And inference in		
	laborat	Alternating	any part He works in The Car		
	ory				
verbal +	а	Magnetism	Magnetism /Properties the public	3	10-12
My class	lecture	d its	For magnetism /Definitions For		
	And	properties	types Magnets /lines Powers		
	laborat		Magnetism		
	ory				
verbal +	а	circle	circle Shipping in The Car / an idea	3	13-14
My class	lecture	ipping in	General on Generator the current		
	And	The Car	Continuous / Its parts / Its		
	laborat		components /principle currency /		
	ory		chart General For the department		
			electrical For the generator	0	
verbal +	а	circle	circle Shipping For a generator the	3	15-16
My class	lecture	Shipping	current Alternating / Its parts / Its		
	And	For a	components /principle the job /		
	laborat	generator	chart General For the department		
	ory	the	electrical For the generator		
		Current			
		Alternatin			
worhol	2	<u> </u>	onging Initiator the movement (The	2	17 10
My class	a locturo	Initiator	predecessor) / its parts / Its	З	1/-10
My Class	And	the	components / no parts / no		
	laborat	movement	Currency/Chart Coneral For the		
	aburat	Invenient	department electrical For the engine		
	UIY	nr	acparament electrical rol the englite		
verhal +	2	Ignition	First generation ignition system	3	19-20
My class	lecture	evetor	(rogular) / parts / working	5	10 20
	And	Sysielli,	(ieguiai) / parts / working		
	laborat	rirst	principle / general diagram of		
	orv	generatio	the system's electrical circuit		
	5-9	l n			

		1			
verbal + My class	a lecture And laborat ory	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 laborat ory	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 laborat ory	Auxiliary devices in the car	Auxiliary devices in the car (fuel gauge / oil pressure gauge)	3	24-25
verbal + My class	a lecture And laborat ory	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 laborat ory	Car air condition ing and heating devices	Car air conditioning and heating devices	3	27
verbal + My class	a lecture And laborat ory	Glass wiper device	Windshield wiper device/fuel pump (electrical circuits)	3	28
verbal + My class	a lecture And laborat ory	Electrical circuit for audio and video	Electrical circuit for audio and video audio/early warning system against theft		29-30

	audio		
	Cour	se description form	
		name The decision	.١
		Electric	cars2
		Code The decision	۰۲
		the chapter / the year	۳.
		a	nnual
		date Preparation this the description	.٤
		Available attendance forms	.0
		Halls , laboratories , workshops	
	Number	of study hours (total)/number of units (total)	٦.
		3 hours Weekly /6 units	
Name of the cours	e administra	tor (if more than one name is mentioned)	.٧
		the name: on Improver Hamidi	
		Course objectives	۰.٨
iectives of the study sub the use of ele injection syste luding reading th	ject :Teachir ectrical appl em, and the ne electrical	ng the student and preparing him to k liances, electronic devices, the electr electrical and electronic sensors of c circuits of these components of all k and diagnosing fa	now onic ars, inds ults.

ategies And methods Interactive that Make from Learner A pivot For the process Educational				The stra	ategy
Evaluation	Learning	Name of the	Required learning outcome	s ho	the
method	method	unit or topic		urs	week
verbal + My class	a lecture And laborat ory	Semicon ductors	Semiconductors - the diode crystal - the equivalent circui 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 zene diode, the zener diode, a voltage stabilize	e 3 t e r e r a r	1-2
verbal + My class	lecture And laborat ory	Transistor	Transistor typepnp and npr type, working theory, transisto components, characteristics comparison between othe types, transistor symbols, the transistor works as an amplifie for three types	n 3 r , r e r S	3
verbal + My class	lecture And laborat ory	Types of transistor s	Types of transistors - the working principle of the transistorJFET as an output amplifier - transistor properties and applications, operating principle of the MOSFET type transisto	e 3 e t s g e r	4-5
verbal + My class	lecture And laborat ory	Transfor mers and measurin g devices	Transformers and measuring devices - power transformers general specifications classification of active and passive power transformers resistive transformers, voltage	g 3 - - d ,	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 laborat ory	integrated Circuits	Integrated Circuits - How to manufacture integrated circuits - Function of process amplifier	3	8
verbal + My class	a lecture And laborat ory	Basic operation s 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 laborat ory	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 laborat ory	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 laborat ory	Electroni c 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

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	ory	compone	mixture enrichment - fuel cut-		
		nts of	off system at very high speeds		
		control			
		systems			
verbal + My class	a lecture And laborat ory	Electrical circuits for various electroni c 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 laborat ory	Electrical diagrams and instrume nt panel compone nts	Identify electrical diagrams and instrument panel components	3	23
verbal + My class	a lecture And laborat ory	How to connect and make sensors	Learn how to connect and operate reversing warning sensors	3	24
verbal + My class	a lecture And laborat ory	Read integrate d electrical maps	Recognizing and reading integrated electrical maps for models of cars	3	25
verbal + My class	a lecture And laborat ory	Exhaust gas control system,E GR	Exhaust gas control system,EGR Exhaust gas recirculation - catalytic converter system	3	26
verbal + My class	a lecture And laborat ory	Fuel cell idea about its operation	The fuel cell is an idea about its operation and its applications in modern cars	3	27

		and			
		applicati			
		ons			
verbal +	а	Reading	Pooding foulto using the orde	3	28-30
My class	lecture	faults	Reading faults using the code		
	And	using the	he system, fixing problems, and		
	laborat	code	cleaning the memory of the		
	ory	system	codes stored in it		

The rapporteur described	the crin	nes of the	Baath	Party	in
	Iraq				

11 ay									
name Decision:									
			crimes p	arty Res	urrecti	on in l	raq		
Code The decision									
			the	chapter /	/ the ye	ear :	۳.		
				1 /	2023	-2024	AD		
			date Preparation th	is the de	escripti	on :	.٤		
			*		2-14	-2024	AD		
			Availat	le attend	ance fo	orms	.0		
	1	Number of st	tudy hours (total)/nur	nber of u	nits (to	tal):	٦.		
	Т	The number of	of hours (30) and the	number o	of units	(2).			
N	ame of the	course ad	ministrator (if more	than one	e name	e is	. ۲		
			,	m	ention	ed):			
				Nar	ne: Em	ail :			
Dr Ahmed Ghani									
				Course	e object	ives	۰.٨		
oducing the cri	mes of the Baa	ath regime –		Objective	es of the	study su	bject		
committed ag	gainst the Iraqi	people.							
ling out some f	acts that are hi	dden from –							
ne Iraqi people	regarding their	crimes.							
dents' insight	into the perio	d of time –							
ceding the	Baathist re	egime's							
mis	leading media a	attacks.							
			Teaching and	d learning	g strate	gies	.٩		
ategies And	d methods I	nteractive t	hat Make -			The stra	ategy		
m Learne	r A pivo	t For the	process						
		Ec	lucational						
					Cours	e struc	ture.		
Evaluation	Learning	Name of the	Required learning	outcomes	hours	the	week		
method	method	unit or topic					<i>a</i>		
est diagnostic Oral	Methods Interactive	oncept Crimes nd its sections	Identify on Terminology Ir Subject S	ncoming in cholarship	1	the	first		
u									

		1	1		1
			examining on Sections Crimes And	1	the second
Discussions	Methods	ctions Crimes	discrimination While While Between	-	the second
Collective	Interactive		them		
Discussions	Methods	locumentation	amining a job The court Criminal Iraqi	1	the third
Collective	Interactive	crimes			
Discussions	Methods	ries Crimes	mining on Crimes International And	1	the fourth
Collective	Interactive	International	its types	1	the fourth
		Decisions	mining on Decisions Outgoing from	1	Fifth
Discussions	Methods	going from	The Mahama Criminal Iraqi		
Collective	Interactive	court			
D: .		Criminal Iraqi		1	171
Discussions	Methods	Crimes Mental	examining on Concept Crimes Mental	1	VI
Discussions	Methods	hanics Crimes	Identify on Mechanics Crimes Mental	1	Seventh
Collective	Interactive	Mental		-	Seventii
Discussions	Methods	antiquities	ntify on Archaeology Negativity For	1	VIII
Collective	Interactive	Crimes Mental	crimes Mental		
Discussions	Methods	Crimes Social	Identify on Crimes Social	1	Ninth
Lollective	Interactive	tarization the	mining on Techniques Militarization	1	The tenth
Collective	Interactive	society	the society	1	The tenth
Directive		ition the	ntify on His attitudes Negativity from	1	
Discussions	Methods	em Baathist	Debt		atheistic ten
Collective	Interactive	from Debt			
Discussions	Methods	ations Laws	mining on Violations For the laws	1	he second ten
Collective	Interactive	The Iraqi	lraqi	1	the third ter
Discussions	Methods	ations rights	The people	1	the third ten
Collective	Interactive	Human	The people		
		e decisions	mining on some Violations Political	1	the fourth ten
Discussions	Methods	Violations	And the military		
Collective	Interactive	tical And the			
		tary To sleep			
Discussions	Methods	tes Prisons	mining on number from Places	1	Fifth ten
Collective	Interactive	And detention	Detention For the system Baathist	*	
Discussions	Methods	Crimes	mining perhaps Crimes	1	VI ten
Collective	Interactive	Environmental	Environmental		
Discussions	Methods	ution The	Identify on Species pollution	1	Seventh ten
Collective	Interactive	like And			
Discussions	Methods	cv the earth	mining antiquities Destruction For	1	VIII ten
Collective	Interactive	Scorched	cities	-	
Discussions	Methods	rying Marshes	Identify on Policy drying Marshes	1	Ninth ten
Collective	Interactive				
Discussions	Methods	scraping	examining on Damages Agricultural	1	The twentieth
Collective	Interactive	hards And			
		crimes	mining on Cemeteries Collective	1	vistic And the
Discussions	Methods	Cemeteries	Really The people	T	twentv
Collective	Interactive	Collective			
Discussions	Methods	Sequence	mining on date Cemeteries Collective	1	second And

Collective	Interactive	eline For aves Collective		For t	he syste	em		the	tw	enty
Discussions	Methods	graveyard	mining on some	Sources Rel	lated W	ith	1	third	And	l the
Collective	Interactive	Martyrs peace	the	e material So	cholarsh	nip			tw	enty
Discussions Collective	Methods Interactive	veyard Khan Quarter	mining on some material Schola	Sources Rel rship gravey	lated Wi yard Kh Quart	ith an ter	1	four the	h tw	And enty
Discussions	Methods	aveyard Zarqa	mining on some	Sources Rel	lated Wi	ith	1	h Ar	d	the
Collective	Interactive		the	e material So	cholarsh	nip			tw	enty
torial - writing		ily - Quarterly			Tes	sts	4	And	l	the
Reports									tw	enty
						С	ourse e	valuatio	n	.11
distribution Cl	ass from 100 o	n according to exa	mission Assigned ms Daily And ora	l With it rec l And month	luester l	like F edito:	Preparatrial And	tion Da l repor	ily ts	And etc
				Lea	arning a	nd tea	aching r	esource	es	.11
crimes Sy universities	vstem Resurrect s Governmental	tion in Iraq For And eligibility	Required textbooks (methodology, if any)							
						Mai	in refere	ences (sou	rces)
			Recommended	supporting	books	and	referer	nces (scie	ntific
							journ	als, rep	ort	s)
					Electro	nic re	ferences	s, Inter	net	sites

Course description mathematics

mathematics

Code The decision .۲

the chapter / the year ."

2023-2024

date Preparation this the description .:

4-30-2024

- Available attendance forms
 - My presence
- Number of study hours (total)/number of units (total) .⁷ n(2), h(0), h(4)
- Name of the course administrator (if more than one name is .^v mentioned)
 - Name: Montazer Abdel Jawad

Course objectives

Introducing the student to	Objectives of the study subject
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.	
	Tapphing and loarning strategies

Teaching and learning strategies .٩

				The	strategy
				Course	structure.
Evaluation	Learning	Name of the	Required	hours	the
method	method	unit or topic	learning		week
			outcomes		
	Explanatio	Matrices	Operations on	2	the
	n on the		matrices and		first
	hoord		determinente		and
	board		determinants		and
					the
					second
Test for		Differentiation,	Differentiation,	2	The
etudente		algebra of	algebra of		third,
Students		derivatives,	derivatives,		fourth
		multiple	multiple		and
		functions	functions		fifth
		Trigonometric,	Trigonometric,	2	Sixth,
		logarithmic and	logarithmic and		seventh
		exponential	exponential		and
		functions and	functions and		eighth
		their derivatives	their derivatives		
		and implicit	and implicit		
		rule	runctions, chain		
		Drawing	Drawing		The
		functions	functions	2	ninth
		drawing	drawing		tenth
		trigonometric	trigonometric		and
		functions and	functions and		elevent
		maximum and	maximum and		h
		minimum limits.	minimum limits.		
Test for		Applications of	Applications of	2	Twelfth
		physical	physical		and
students		differentiation,	differentiation,		thirteen
		velocity and	velocity and		th
		acceleration, and	acceleration, and		
		engineering	engineering		
		applications of	applications of		

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Course evaluation .

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20 theoretical

10 works the year (Duties + Share in the line +Presence and commitment)

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,	Recommended supporting books and
fifth, and sixth grade students	references (scientific journals, reports)
line mathematics lecture sites for	Electronic references, Internet sites
institute students	

Course Name - Thermodynamics Course Code - Semester/year - 2023/2024 The date this description was prepared - 6/4/2024 Available attendance forms - 6/4/2024 Available attendance forms - 6/4/2024 Available attendance forms - 6/4/2024 Number of study hours (total)/number of units (total) Output Course administrator (if more than one name is mentioned) - Name of the course administrator (if more than one name is mentioned) - Semester/year Course objectives - Enabling students to obtain knowledge and understand the meaning of thermodynamics - Course objectives - Theoretical lectures and practical experiments The strategy Course structure -V Course structure -V Course structure -V Theoretical lectures and practical experiments Theoretical lectures and practical experiments The strategy								
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Teaching and learning strategies . Theoretical lectures and practical experiments The strategy Course structure . \ Evaluat Learning Name of the unit or topic Required hours the ion method learning outcomes ueek d 0 1 1 1 1 Exam Thermodynamic term - measuring devices - properties Learn about the properties 12 1-3 Exam Tentresture elationships (Celsius, Kelvin and Gain 12 4-6	Enat	Enabling students to obtain knowledge of the first and second laws of thermodynamics -						
Theoretical lectures and practical experiments The strategy Course structure .N Evaluat Learning Name of the unit or topic Required hours the ion method learning outcomes week method nethod learning outcomes nethod			1	eaching and	learning str	ategies .٩		
Evaluat Learning Name of the unit or topic Required hours the ion method learning outcomes week d - - - - - d - <			Theoretical lectures and practical experiments		The str	ategy		
EvaluatLearning methodName of the unit or topicRequiredhoursthe weekionmethodlearningoutcomesweekmethooutcomesoutcomesd-Thermodynamic term - measuring devices - propertiesLearnabout the properties					Course stru	icture .1.		
ion method methodmethodlearning outcomesweekmethod d <t< td=""><td>Evaluat</td><td>Learning</td><td>Name of the unit or topic</td><td>Required</td><td>hours</td><td>the</td></t<>	Evaluat	Learning	Name of the unit or topic	Required	hours	the		
methooutcomesoutcomesddFxamLectures <td>ion</td> <td>method</td> <td></td> <td>learning</td> <td></td> <td>week</td>	ion	method		learning		week		
d -	metho			outcomes				
Exam Lectures Thermodynamic term - measuring devices - properties Learn about the - state - processes - cycles - density and specific volume about the properties 12 1-3 Exam Lectures - pressure (gauge, vacuum, absolute). properties 12 1-3 of thermody namics 12 1-3 Exam Lectures Temperature relationships (Celsius, Kelvin and Gain 12 4-6	d							
Exam - state - processes - cycles - density and specific volume about the properties 12 1-3 Exam Lectures - pressure (gauge, vacuum, absolute). properties 12 1-3 Mathematical formula Image: constraint of the state of the s			Thermodynamic term - measuring devices - properties	Learn				
Exam Lectures - pressure (gauge, vacuum, absolute). properties 12 1-3 of thermody namics 1 1 1 1 Exam Lectures Temperature relationships (Celsius, Kelvin and Gain 12 1			- state - processes - cycles - density and specific volume	about the				
Image: Second state Second state Second state Fxam Lectures Temperature relationships (Celsius, Kelvin and state Gain	Exam	Lectures	- pressure (gauge, vacuum, absolute).	properties	12	1-3		
Exam Lectures Temperature relationships (Celsius, Kelvin and Gain				of				
namics namics Exam Lectures				thermody				
Temperature relationships (Celsius, Kelvin and Gain 12 4-6				namics				
	Exam	Lectures	Temperature relationships (Celsius, Kelvin and	Gain	12	4-6		
Rankine scale) - energy - renewable energy - resources knowledg			Rankine scale) - energy - renewable energy - resources	knowledg				

		(solar energy, wind energy, waterfall energy, tidal	e of the		
		energy).	subject		
			and		
			perform		
			calculatio		
			ns		
		Source of hydrocarbons (oil and gas) - form of energy	Gain		
		used in thermodynamics - potential energy - kinetic	knowledg		
		energy - heat - work. Internal energy flow worked	e of the		
			subject		
Exam	Lectures		and	12	7-9
			perform		
			calculatio		
			ns		
		The first law of thermodynamics - flow system - N flow	Gain		
		system - stable - unstable - open - closed. Examples.	knowledg		
			e of the		
_	_		subject		
Exam	Lectures		and	4	10
			perform		
			calculatio		
			ns		
		Applications of the first law to the nozzle, diffuser,	Gain		
		condenser, evaporator, compressor, heat exchanger	knowledg		
		(surface, open), turbine, and boiler. Examples.	e of the		
-			subject	4	11
Exam	Lectures		and	4	11
			perform		
			calculatio		
			ns		
		Thermodynamic process, stability experiment	Gain		
		(pressure, volume, temperature, enthalpy) -	knowledg		
Fa ,		multidirectional process - opaque represented on a	e of the	0	10.10
Exam	Lectures	diagram (PV), (TS), and (PH).	subject	8	12-13
			and		
			perform		

			calculatio		
			ns		
		Specific heat, a type of specific heat constant for a gas.	Gain		
			knowledg		
			e of the		
_	_		subject	4	1.4
Exam	Lectures		and	4	14
			perform		
			calculatio		
			ns		
		The second law of thermodynamics, statement of the	Gain		
		second law, heat engine, heat pump	knowledg		
			e of the		
	_		subject		
Exam	Lectures		and	4	15
			perform		
			calculatio		
			ns		
			(Course evalu	ation .11
			10	marks: pract	ical exam
			10 ma	ırks: In-class	activities
			10 ma	ırks: theoret	ical exam
		60 marks: Final exam (50 theoretic	al exam/10 m	narks: practi	cal exam)
		Le	earning and to	eaching reso	ources .17
				Required 1	textbooks
				(methodolo	gy, if any)
-			Mair	n references	(sources)
			Recommen	ded support	ing books
			and	references	(scientific
				journals, re	ports,)
			Electroni	c references	, websites

	Course Name: .a
Con	nputer basics
	Course Code: .b
	Semester/Year: .c
2023-	-2024
	Date this description was prepared:
202/	
2024	• • • •
	Available attendance forms .e
My pro	esence
Number of	study hours (total)/number of units (total) .f
30 hours	s/2 units
Name of the course administ	rator (if more than one name is mentioned).g
	Name: Abbas Abdul Hussein
	Course objectives .h
Basic components of a computer •	Course objectives: The student will gain
Operating systems (Windows) •	knowledge in:
The concept of operating systems	
Tunes of operating systems	
Types of operating systems •	
Operating system features •	
desktop •	
Main components of the desktop •	
Hide, show and arrange icons on the desktop $ullet$	
Change the location of the taskbar $ullet$	
Increase and decrease the size of the taskbar $ullet$	
Change the taskbar properties $ullet$	

L	earn about the m	ost important •				
	programs	Microsoft Office				
				Teaching and learning	ng strategi	es .i
	Giving theoretical and practical lectures				The	strategy
				Cou	rse structu	re .j
Evaluation	Learning	Name of the	unit	Required learning		the
method	method	or to	opic	outcomes	nours	week
				definition of		
				computer		
Paper test	theoretical	Computer ba	sics	Hardware and	2	1
				software		
				components		
				A general		
				introduction to the		
				topic of operating		
				systems, their		
				types, versions, and		
				privileges of the		
				operating		
Paper test	Theoretical	Operating syst	ems	systemMS- DOS,	2	2
	and practical			importance		
				evidence and levels		
				of evidence.		
				internal operating		
				commands,		
				external operating		
				commands		
				The Windows		
				operating system is		
		Wind	ows	understood, its		
		operating sys	tem	features, its basic		
practical test	Theoretical	TL		requirements, an	8	3-6
F	and practical	I ne m	iain the	overview of its		2 3
		Components Of Jeek	ton	the main		
		ucsh	roh	components of the		
				desktop, definition		
				of the concept of an		

				I	
			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.		
			Desktop properties		
			Managing windows		
			on the desktop		
			Function		
			description of		
		Desktop	window elements		
nractical test	Theoretical	Properties	Arranging open	2	7
practical test	and practical	Manage windows	windows Moving	-	,
		on the desktop	willuows wioving		
			within the window		
			Noving the window		
			from one place to		
			another Dealing		
			with the dialog box		
			Reviewing the		
			contents of discs,		
			files, and folders		
			and how to deal		
			with them running		
		Desktop	and printing dises		
practical test	nractical	Properties	and printing uises,	1	Q N
practical test	practical	Manage windows	auung programs	-	0-9
		on the desktop	such as word or		
			Excel to the start		
			menu, retrieving or		
			deleting files and		
			folders from the		
			recycle bin.		
D			Microsoft Word		
Paper test	Theoretical	Word processor	word processing		
And my	i neoretical	programMicrosoft	nragram Ite	8	10-13
work	and practical	word	program. Its		
WULK			pui pose is to		
			operate it. Open a		

			document file.		
			Create a new		
			document.		
			Toolbars, writing		
			text. Selecting or		
			misleading text.		
			Editing process		
			Page settings Print		
			nreview nrinting		
			preview, printing.		
			Headers and		
			footers Page		
			numbering		
			Inserting time,		
			date, and symbols		
			Character		
Paper test		Word processor	formatting		
A	Theoretical	programMicrosoft	Paragraph	2	14
	and practical	word	formatting Shading		
WORK			strokes		
			Punctuation and		
			punctuation Multi-		
			column text		
			Snelling and		
			grammar		
			Si ammai		
			Create tables and		
			deal with them,		
			insert		
Paper test		Word processor	mathematical		
And my	Theoretical	programMicrosoft	equations and how	2	15
	and practical	word	to deal with them,		
WOLK			and change the		
			formula as		
			requested		
			•		
			Cours	se evaluatio	on .k
			20 m	narks: pract	ical exam
			2	20 degrees:	paintings
			10 mar	ks: In-class	activities
			:	50 marks: F	inal exam
			Learning and teach	ing resourc	es .l
			U	U III	

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

		Course Name .1
	Engl	ish -1
		Course Code . Y
		Semester/year .۳
	2023,	/2024
		۰٤. The date this description was prepared
	4/4/	2024
		ہ. /a/ Available attendance forms/
N	1y pr	esence
Ν	umbo	er of study hours (total)/number of units (total) .٦
	nours	/ 2 units
Name of the course	admi	nistrator (if more than one name is mentioned) .V
		Name: Star Jabbar
		۸. Course objectives
Introducing the student to hearing and	0	Course objectives
perception skills.		,
Introducing the student to speaking skills.	0	
Developing the student's awareness of	0	
Toaching the student correct propunciation	0	
Teaching the student to pronounce English	0	
vocabulary correctly	0	
Teaching the student the rules of the English	0	
language.	0	
Teaching the student understanding and	0	
awareness skills in the English language.		
Teaching the student English speaking skills.	0	
Teaching the student the method of	0	
dialogue and discussion in the English		
language		

Teaching and learning strategies .٩

Theoretical lectures

The strategy

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

		r	1		
			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
			C	ourse evalı	uation .
			20 ma	rks: theore	tical exam
			10	marks: Cla	ss activity
				70 marks: F	inal exam
			learning and te	aching resc	ources .11
Beginner	Workbook with	key Headway Plus	Required textbo	oks (moth	
Degniner	,, orkoook with	Headway plus	kequireu textbo	oks (meth	any)
			Main	references	(sources)
	Recommended supporting books and				books and
references (scientific journals					
				re	eports,)
		Electronic	references	, websites	

	Course Name
computer applications	
	Course Code
MTU27	
	Semester/year
2023/2024	
The date this description	n was prepared
4/5/2024	
Available att	endance 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
Со	urse objectives
Introducing the student to the use of different commands on the computer. $ullet$	Course
Introducing the student to design skills and requirements, both in AutoCAD and •	objectives
Excel.	
Dealing with the concept of networksComputer Network •	
How to prepare tables of quantities, calculations, input and output in the Excel $ ullet $	
program	
How to create a worksheet, adjust it, then design and draw using the AutoCAD $ ullet $	
program	
Teaching and lear	ning strategies
Theoretical lectures and practical application on the computer	The strategy

				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

	Γ	Г		1	[
Practical and theoretical exams	Theoretical lectures and practical application on the computer	group of cells 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	format by using			
	application on the computer	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 boundariesLimi ts – 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 commandsEditi ng	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 dimensionsDime nsion	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

				1		
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 descriptionsBloc k&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 e	valuation	
		20 marks for the fir	st semester exam (prac	tical and th	eoretical)	
		20 marks for the secor	nd semester exam (prac	tical and th	eoretical)	
		10 marks for evaluatin	g the student's activity	within the	classroom	
		50 ma	rks for final exam (prac	tical and th	eoretical)	
			Learning an	d teaching	resources	
			Required textbooks (methodology, if any)			
	Various sources from the Internet			Main references (sources)		
AutoCAD 202	AutoCAD 2022: By CADArtifex, John Willis, and •			Recommended supporting books and		
	Sandeep Dogra.			journals, re	eports,)	
Excel: QuickSt	• Excel: QuickStart Guide from Beginner to Expert by William Fischer					
			Electronic	references	, websites	