Ministry of Higher Education and Scientifi
Scientific Supervision and Evaluation A
Department of Quality Assurance and Acad
Accreditation Department

Academic Program and Course Description Guide

Introduction:

The educational program is a coordinated and organized package of courses that include procedures and experiences organized into study modules. The primary purpose of the program 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 academic program description provides a brief summary of the program's main features and courses, indicating the skills students are expected to acquire based on the program's objectives. The importance of this description is evident in that it represents the cornerstone for obtaining program accreditation. It is written by faculty members under the supervision of the academic committees in the academic 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 new developments and changes in the educational system in Iraq, which included a description of the academic program in its traditional form (annual, semester) in addition to adopting the description of the academic program circulated in accordance with the letter of the Department of Studies T M.3/2906 on 3/5/2023 regarding programmes that rely on the Bologna Process as the basis for their work.

In this context, we cannot but emphasize the importance of writing descriptions of academic programs and courses to ensure the smooth running of the educational process.

Concepts and terms:

Academic program description:The academic program description provides a concise summary of the program's vision, mission, and objectives, including a precise description of the targeted learning outcomes according to specific learning strategies.

Course Description:Provides a concise summary of the course's key features and the learning outcomes expected of the student, demonstrating whether the student has made the most of the available learning opportunities. It is derived from the program description.

Program vision:An ambitious vision for the future of the academic program to be advanced, inspiring, motivating, realistic, and applicable.

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

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

Curriculum structure:All courses/subjects included in the academic program according to the approved learning system (semester, year, Bologna track), whether required by (ministry, university, college, or scientific department), along with the number of academic units.

Learning outcomes:A consistent set of knowledge, skills, and values acquired by the student after successfully completing the academic program. The learning outcomes for each course must be defined in a manner that achieves the program's objectives.

Teaching and learning strategies: They are the strategies used by faculty members to develop student teaching and learning. They are plans followed to achieve learning objectives. They describe all classroom and extracurricular activities to achieve the program's learning outcomes.

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

Academic Program Description Form
2024-2025

University: Al-Furat Al-Awsat Technical University
Institute: Technical Institute Kufa
Scientific Department: Mechanic of Power
File Completion Date: 23/6/2025

Signature:
Head of the department
Ass.L. Imad Habeeb Ulaiwi
Date: 23-6-2025

Signature:
Assistant Dean for Scientific Affairs:
Ass.Pro.DR Ayad Muslim Hamzah
Date:

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department
Chief. Eng: Khulood M. AbdAli
Date:
Signature:

Approval of the Dean

1. Program vision
Preparing distinguished and creative technical cadres in the field of vehicle maintenance and repair of all types and managing car service stations, in line with the requirements of the labor market, and developing the scientific and practical capabilities of students in the field of modern automotive technology to keep pace with technological development through modern educational and training programs.

2. Program message
Providing students with scientific and professional training in line with modern technological developments in the automotive sector, so that they become familiar with the necessary knowledge tools and advanced skills to qualify them to work in areas of specialization in the public and private sectors. Working to provide practical opportunities for training students in government departments, the private sector, and research centers before they enter the labor market..

3. Program objectives
1- Training students to diagnose technical faults in cars using modern equipment. 2- Providing the student with practical and scientific skills in repairing and maintaining car faults. 3- Updating technical information for students by continuously developing curricula to keep pace with developments in the automotive field. 4- Conducting workshops, courses and training seminars to introduce students to modern technologies in the automotive field. 5- Working to establish appropriate and equipped workshops that keep pace with the developments in the field of car maintenance. 6- Graduating students with the scientific and practical ability to master the requirements of their specialty and keep pace with developments in it. 7- Working on applying theoretical or applied scientific standards to improve the department’s overall performance on a regular basis.

4. Program accreditation
ABET Engineering Specialties

5. Other external influences
Public sector and private sector

6. Program structure

comments *	percentage	Study unit	Number of courses	Program structure
	40%	58 units	First11	Institutional requirement
	60%	72 units	Second13	
				College requirements
			M	Requirements
				Summer training
				Other

7. Faculty

Faculty members

Faculty preparation		Special requirements/skills (if any)		Specialization		Academic rank
lecturer	angel			private	general	
	✓			General	Machin	Assistant

				Mechanical Engineering	ery and Equipment Engineering	Professor
	✓			Applied Mathematics	mathematics	Assistant Professor
	✓			Refrigeration and Air Conditioning Technology Engineering	General Mechanical Engineering	Assistant Professor

Course Description Form

1. Course name	
internal combustion engines	
2. Course code	
IKUMP0202	
3. semester/year	
annual	
4. Date this description was prepared	
5. Available attendance forms	
Halls, workshops, workshops	
6. Number of study hours (total) / Number of units (total)	
4 hours per week / 8 units	
7. Name of the course administrator (if more than one name is mentioned)	
Name: Email: Heba Qassem	
8. Course objectives	
Course objectivesThe student will be able to identify the types of combustion engines, their parts, and the differences in Between them in terms of their work and the foundations of that work and the study of performance factors for each type and the influencing factors On those transactions	
9.	
Interactive strategies and methods that make the learner the focus the educational process	Strategy

.Course structure					
Evaluation method	Learning method	Name of unit or topic	Required learning outcomes	watc hes	week
Oral + Classroom	Lecture a workshop	Engine design internal combustic	Learn about the worki principle combustion engines Internal	4	1- 4
Oral + Classroom	Lecture a workshop	harmful emissions Issued by engines internal combustic	Learn how to form Emissions inside roon combustion	4	5-8
Oral + Classroom	Lecture a workshop	Engine performan Its laws a methods the account	Learn how to calculate Horsepower and torqu Brake and consumptic rate fuel	4	9-12
Oral + Classroom	Lecture a workshop	Engine maintenan internal combustic	Learn the necessa methods Follow them to increa engine performance.	4	13-16
Oral + Classroom	Lecture a workshop	Preserving environment Emissions from car engines	Learn the path of duty Follow it to redu emissions Harmful from engine	4	17-20
Oral + Classroom	Lecture a workshop	sustainable energy and renewable	Learn about fuel types Alternative to engi that Spark and compressi operated	4	21-24
Oral + Classroom	Lecture a workshop	Four-wheel drive strokes and dou strokes	Learn about the types engines	4	25-30
1. Course Evaluation					
Grade distribution from100 according to the tasks assigned to the student, such as daily preparation, daily and semester exams, written exams, reports, etc.					

2. Learning and teaching resources	
The textbook	Required textbooks
Textbook + Internet Resources	Main references (sources)
Dr. Adel Mahmoud Hassan, Dr. Qahtan Khalaf A Khazraji Principles of Production, Second Edition, University Baghdad Higher Education Press for the Year1987	Recommended supporting books and references (scientific journals, reports...)
Iraqi Virtual Library, Wikipedia	Electronic references, websites

Course Description Form

1. Course name
Auto electrics1
2. Course code
IKUMP0102
3. semester/year
annual
4. Date this description was prepared
5. Available attendance forms
Halls, workshops, workshops
6. Number of study hours (total) / Number of units (total)
3 hours per week / 6 units
7. Name of the course administrator (if more than one name is mentioned)

the name: Ali Mohsen Hamidi
8. Course objectives
Course objectives:Teaching students to know the basics of automotive electrical device and how to connect and operate electrical and electronic circuits.
9.

Interactive strategies and methods that make the learner the focus the educational process	Strategy

.Course structure

Evaluation method	Learning method	Name of unit or topic	Required learning outcomes	watches	week
Oral + Classroom	Lecture and workshop	General introduction to automotive electricity	Introduction to the general principles of automotive electricity / Type of electrical power / Main electrical sources for the car / Type of electricity used in the car as well as an introduction to magnetic theory	3	1
Oral + Classroom	Lecture and workshop	Vehicle power system	Car power system / Closed electrical circuit Ohm's law / Electrical power / Mathematica problems	3	2
Oral + Classroom	Lecture and workshop	Kirchhoff's first and second laws	Kirchhoff's First and Second Laws / Mathematical Problems / Definitions Collection	3	3

Oral + Classroom	Lecture and workshop	Types of electrical circuits	Types of electrical circuits (for connecting resistors) / series / parallel / mixed / mathematical problems	3	4
Oral + Classroom	Lecture and workshop	Car ener sources	Power sources in the car, including (battery/types of batteries/components of batteries/ Shipping methods for all types	3	5
Oral + Classroom	Lecture and workshop	Solutions used for the three types of batteries	Solutions used for the three types of batteries / Chemical reaction methods / Devices used to test solutions / Maintenance methods / Measuring solution density	3	6
Oral + Classroom	Lecture and workshop	Connecting energy sources	Connecting energy sources (batteries) to the electrical circuit in three types / connecting the sources in series / parallel / mixed / connection characteristics for each case	3	7
Oral + Classroom	Lecture and workshop	Calculating the final value of the power source in an electrical circuit	Mathematical problems to calculate the final value of the power source in an electrical circuit	3	8
Oral + Classroom	Lecture and workshop	General id about alternating current	General idea about alternating current / definitions of alternating current and inference in which part of the car it works	3	9
Oral + Classroom	Lecture and workshop	Magnetism and properties	Magnetism / General properties of magnetism / Definitions of types of magnets / Magnetic lines of force	3	10-12
Oral + Classr	Lecture and	Car chargi circuit	Car charging circuit / General idea about the DC generator / Its parts / Components	3	13-14

oom	worksh op		/ Principle of operation / General diagram of the generator's electrical circuit		
Oral + Classr oom	Lecture and worksh op	AC generator charging circuit	Charging circuit of an alternator / its parts / components / working principle / general diagram of the generator's electrical circuit	3	15-16
Oral + Classr oom	Lecture and worksh op	Starter motor	Starter motor / its parts / components / working principle / general diagram of the motor's electrical circuit	3	17-18
Oral + Classr oom	Lecture and worksh op	First generatio n ignition system	First generation ignition system (conventional) / parts / working principle / general diagram of the electrical circuit of the system	3	19-20
Oral + Classr oom	Lecture and worksh op	General diagram of the electrical circuit of a candleTh e mug	Spark plugs / Parts / Working principle / Maintenance and inspection / Spark plug electrical circuit diagram	3	21
Oral + Classr oom	Lecture and worksh op	Main, side and interior lighting system	Main, side and interior lighting system / Components / Working principle / General plan of systems	3	22-23
Oral + Classr oom	Lecture and worksh op	Car assistanc e devices	Car auxiliary devices (fuel gauge / oil pressure gauge)	3	24-25
Oral + Classr oom	Lecture and worksh op	Electrica l circuit to control car doors and	Electrical circuit to control car doors and windows	3	26

		windows			
Oral + Classroom	Lecture and workshop	Car air conditioning and heating devices	Car air conditioning and heating devices	3	27
Oral + Classroom	Lecture and workshop	windshield wiper	Windshield wiper/fuel pump (electrical circuits)	3	28
Oral + Classroom	Lecture and workshop	Audio and Video Electrical Circuit	Audio and video electrical circuit / early anti-theft alarm system		29-30

Course Description Form

1.	Course name
Auto electrics2	
2.	Course code
IKUMP0205	
3.	semester/year
annual	
4.	Date this description was prepared
5.	Available attendance forms
	Halls, workshops, workshops
6.	Number of study hours (total) / Number of units (total)
	3 hours per week / 6 units
7.	Name of the course administrator (if more than one name is mentioned)
	the name: Ali Mohsen Hamidi
8.	Course objectives
Course objectives:Teaching and preparing the student to know how to use electrical and electronic devices, electronic injection systems, and electrical and electronic sensors for cars, including reading the electrical circuits of all types of these components and diagnosing faults.	
9.	

Interactive strategies and methods that make the learner the focus the educational process	Strategy

Evaluation method	Learning method	Name of unit or topic	Required learning outcomes	watches	week
Oral + Classroom	Lecture and workshop	semiconductors	Semiconductors - Diode crystal - Equivalent circuit of diode crystal - Half-wave modulation by diode - Bridge modulation efficiency, Zener diode, Equivalent circuit of Zener diode, Voltage stabilizing zener diode	3	1-2
Oral + Classroom	Lecture and workshop	transistor	Transistor typePNP and NPN type, theory of operation, components of the transistor, characteristics, comparison between other types, transistor symbols, the transistor works as an amplifier for three types	3	3
Oral + Classroom	Lecture and workshop	Types of transistors	Types of transistors - Transistor operating principleJFET as an output amplifier - Transistor properties and applications, MOSFET transistor working principle	3	4-5
Oral + Classroom	Lecture and workshop	Transformers and measuring devices	Transformers and measuring instruments - Power transformers - General specifications - Classification of active and passive power transformers, resistor transformers, voltage, load measurement, differential output transformers (LVDT), induction power transformers, flux power transformers, temperature transformers, thermal thermostats, thermal pyrometers	3	6-7

Oral + Classroom	Lecture and workshop	Integrated circuits	Integrated Circuits - How to Fabricate Integrated Circuits - Function of an Operational Amplifier	3	8
Oral + Classroom	Lecture and workshop	Basic operations of the engine control unit	Basic operations of the engine control unit - digital signal - analog signal - control unitECU components	3	9-10
Oral + Classroom	Lecture and workshop	Definition of sensor, its function	Definition of the sensor, its function - its types - intake manifold absolute pressure sensor - mass air flow sensor - air temperature sensor - engine temperature sensor - throttle valve position sensor	3	11-13
Oral + Classroom	Lecture and workshop	Definition of triggers	Definition of actuators - actuators control unit - injection nozzles - no-load speed system - exhaust gas recirculation valve	3	14-15
Oral + Classroom	Lecture and workshop	Electronic ignition system	Electronic ignition system - its components - how it works electrically and its relationship with the rest of the control unit components	3	16
Oral + Classroom	Lecture and workshop	Electrical circuits for various components of control systems	Electrical circuits for various components of control systems - cold start - no-load speed control - mixture enrichment control - fuel cut-off system at very high speeds	3	17-19
Oral + Classroom	Lecture and workshop	Electrical circuits for various electronic engine operating systems	Electrical circuits for various electronic engine operating systems - systemMOTRONIC - MONO-MOTRONIC system, load maps with engine speed and injection angle	3	20-22
Oral + Classroo	Lecture and	Electrical diagrams	Identify electrical diagrams and instrument panel components.	3	23

m	worksh op	and instrument panel component s			
Oral + Classroo m	Lecture and worksh op	How to connect and operate sensors	Learn how to connect and operate the reverse warning sensors.	3	24
Oral + Classroo m	Lecture and worksh op	Reading integrated electrical maps	Recognizing and reading integrated electrical maps for car models	3	25
Oral + Classroo m	Lecture and worksh op	Exhaust gas control system,EG R	Exhaust gas control system,EGR Exhaust Gas Recirculation – Catalytic Converter System	3	26
Oral + Classroo m	Lecture and worksh op	Fuel cell: an idea about its operation and application s	Fuel cell: an idea about its operation and applications in modern cars	3	27
Oral + Classroo m	Lecture and worksh op	Reading faults using the code system	Reading faults using the code system, fixing problems, and clearing the memory of stored codes	3	28-30

Description of the course: Baath Party crimes in Iraq

1. Course name:
Baath Party crimes in Iraq

2. Course code
IKUMP0211
3. Chapter/Year:
2024-2025AD
4. Date this description was prepared:
14-11-2024 AD
5. Available attendance forms
6. Number of study hours (total) / Number of units (total):
Number of hours (30) The number of units is (2).
7. Name of the course administrator (if more than one name is mentioned):
Name: Email: Dr. Ahmed Ghani
8. Course objectives

-Defining the crimes committed the Baath regime against Iraqi people. -To uncover some of the fa hidden from the Iraqi peo regarding their crimes. -To enlighten students about period preceding the Ba' regime from misleading me attacks.	Course objectives

9. Teaching and learning strategies	
- Interactive strategies and methods that ma the learner the focus of the educational proce	Strategy

).Course structure

Evaluation method	Learning method	Name of unit or topic	Required learning outcomes	watches	week
Oral	Interactiv	The concep	Learn the terms used in the	1	the first

diagnosti test	methods	of crimes a their types	course material		
Group discussions	Interactive methods	Crime sections	Review the categories of crimes and distinguish between them	1	the second
Group discussions	Interactive methods	Documenti Baath crim	View the work of the Ir Criminal Court	1	the third
Group discussions	Interactive methods	Types internation crimes	Learn about internatio crimes and their types	1	Fourth
Group discussions	Interactive methods	Decisions issued by Iraqi Criminal Court	View the decisions issued the Iraqi Criminal Court	1	Fifth
Group discussions	Interactive methods	Psychologi l crimes	Understanding the concept psychological crimes	1	Sixth
Group discussions	Interactive methods	Mechanism of psychologi crimes	Identifying the mechanisms psychological crimes	1	Seventh
Group discussions	Interactive methods	Psychologi l effects crimes	Identifying the negat effects of psychologi crimes	1	The eighth
Group discussions	Interactive methods	social crim	Identifying social crimes	1	Ninth
Group discussions	Interactive methods	militarizati of society	View the methods militarizing society	1	tenth
Group discussions	Interactive methods	The Ba regime's position religion	Identify his negative attitud towards religion	1	eleventh

Group discussions	Interactive methods	Violations Iraqi laws	View violations of Iraqi law	1	twelfth
Group discussions	Interactive methods	Pictures human rig violations	View the crimes of authorities against the peop	1	thirteenth
Group discussions	Interactive methods	Some decisions the politi and milit violations the Ba' regime	View some political a military violations	1	fourteenth
Group discussions	Interactive methods	Prisons a detention centers	View a number of Ba regime detention centers	1	fifteenth
Group discussions	Interactive methods	Environme al crimes	View environmental crimes	1	sixteenth
Group discussions	Interactive methods	War a radioactive pollution	Identifying types of pollutio	1	seventeent
Group discussions	Interactive methods	scorched earth polic	View the effects of destruction of cities	1	eighteenth
Group discussions	Interactive methods	draining marshes	Learn about the policy draining the marshes	1	nineteenth
Group discussions	Interactive methods	bulldozing orchards a trees	View agricultural damages	1	Twenty
Group discussions	Interactive methods	Mass gra crimes	Viewing the mass graves the people	1	twenty-firs
Group discussions	Interactive methods	Chronology of m graves	View the history of regime's mass graves	1	twenty-second
Group discussions	Interactive methods	Peace Martyrs Cemetery	View some resources rela to the study material	1	twenty-thi
Group discussions	Interactive methods	Khan al-R Cemetery	View some resources rela to the study material: Khan Rub' Cemetery	1	twenty-fourth

Group discussions	Interactive methods	Zarqa Cemetery	View some resources rela to the study material	1	twenty-fift
Editorial - Report Writing		Daily Quarterly	Tests	4	twenty-six

1. Course Evaluation	
Grade distribution from100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, reports, etc.	
2. Learning and teaching resources	
The crimes of the Ba'ath regime in Iraq against public and private universities	Required textbooks (methodology if any)
	Main references (sources)
	Recommended supporting books and references (scientific journals, reports...)
	Electronic references, websites

Course Description Mathematics

1. Course name
mathematics
2. Course code
IKUMP0104
3. semester/year
2024-2025
4. Date this description was prepared
4-11-2024
5. Available attendance forms
My presence
6. Number of study hours (total) / Number of units (total)
N(2) , A(0), H(4)
7. Name of the course administrator (if more than one name is mentioned)
Name: Muntadhar Abdul Jawad
8. Course objectives

Introducing the student to the use of mathematics in other scientific subjects 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	Course objectives

9. Teaching and learning strategies

	Strategy

).Course structure

Evaluation method	Learning method	Name of unit or topic	Required learning outcomes	watches	week
	Explain on the board	Matrices	Operations on matrices and determinants	2	First and second
Test for students		Differentiation, Algebra of Derivatives, Polynomial Functions	Differentiation, Algebra of Derivatives, Polynomial Functions	2	Third, fourth, and fifth
		Trigonometric, logarithmic, and exponential functions, their derivatives, and implicit functions, the chain rule	Trigonometric, logarithmic, and exponential functions, their derivatives, and implicit functions, the chain rule	2	Sixth, seventh, and eighth
		Graphing functions,	Graphing functions,	2	Ninth, tenth,

		graphing trigonometric functions, maxima and minima.	graphing trigonometric functions, maxima and minima.		and eleventh
Test for students		Physical differentiation applications, velocity and acceleration, and engineering differentiation applications.	Physical differentiation applications, velocity and acceleration, and engineering differentiation applications.	2	twelfth and thirteenth
		Integration, its laws, and its relation to differentiation, definite and indefinite integration.	Integration, its laws, and its relation to differentiation, definite and indefinite integration.	2	Fourteenth and fifteenth
Test for students		Implicit integration, geometric (area and volume) and physical applications of integration	Implicit integration, geometric (area and volume) and physical applications of integration	2	Sixth, seventh, eighth, and nineteenth
		General methods of integration, substitution, partial integration, and the use of exponential and logarithmic partial fractions.	General methods of integration, substitution, partial integration, and the use of exponential and logarithmic partial fractions.	2	twentieth and twenty-first
Test for students		Discrete, homogeneous	Discrete, homogeneous	2	Third, fourth,

		and linear differential equations with their various applications.	and linear differential equations with their various applications.		fifth, and twenty-sixth
		Vectors (cross and scalar product and calculating angles between vectors.	Vectors (cross and scalar product and calculating angles between vectors.	2	twenty-seventh and twenty-eighth
		Statistics (Principles) and Probability Theory	Statistics (Principles) and Probability Theory	2	twenty-ninth and thirtieth

1. Course Evaluation

Grade distribution from100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, reports, etc.
20 theoretical
10 annual activities (homework + class participation + attendance and commitment)

2. Learning and teaching resources

Schaum's Outline Series, Frank Ayers,1977	Required textbooks (methodology if any)
Schaum Briefs Series	Main references (sources)
Mathematics books taught to fourth, fi and sixth grade science students	Recommended supporting books and references (scientific journals, reports...)
Online mathematics lecture sites institute students	Electronic references, websites

1. Course name					
thermodynamics					
2. Course code					
IKUMP0107					
3. semester/year					
2024-2025					
4. Date of preparation of this description					
6/11/2024					
5. Available attendance forms					
My presence					
6. Number of study hours (total) / Number of units (total)					
60 hours / 4 units					
7. Course Supervisor Name (if more than one name is mentioned)					
Name: Heba Qassem					
8. Course objectives					
- To enable students to gain knowledge and understanding of the meaning of thermodynamics. - Enabling students to gain knowledge and understanding of the definition of heat and types of systems. - Enabling students to gain knowledge of the first and second laws of thermodynamics					Course objectives
9. Teaching and learning strategies					
Theoretical lectures and practical experiments					Strategy
10. Course structure					
Eval	Learnin	Name of unit or topic	Requir	watch	week

uation method	g method		ed learning outcomes	es	
exam	Lectures	Thermodynamic terminology – Instruments – Properties – State – Processes – Cycles – Density and specific volume – Pressure (gauge, vacuum, absolute).	Learn about the properties of thermodynamics	12	1-3
exam	Lectures	Temperature relationships (Celsius, Kelvin and Rankine scales) - Energy - Renewable energy - Resources (solar energy, wind energy, rainfall energy, tidal energy).	Gain knowledge of the subject and perform calculations	12	4-6
exam	Lectures	Source of hydrocarbons (oil and gas) - Form of energy used in thermodynamics - Potential energy - Kinetic energy - Heat - Work. Internal energy flow	Gain knowledge of the subject and perform calculations	12	7-9
exam	Lectures	The first law of thermodynamics - flow system - n-flow system - steady - unsteady - open - closed. Examples.	Gain knowledge of the subject	4	10

			and perform calculations		
exam	Lectures	Applications of the first law on nozzles, diffusers, condensers, evaporators, compressors, heat exchangers (surface, open), turbines, and boilers. Examples.	Gain knowledge of the subject and perform calculations	4	11
exam	Lectures	Thermodynamic process, constant experiment (pressure, volume, temperature, enthalpy) - multi-directional process - represented on a diagram (PV), (TS), and (PH).	Gain knowledge of the subject and perform calculations	8	12-13
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	4	15

			the subject and perform calculations		
11. 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)					
12. Learning and teaching resources					
			Required textbooks (methodology if available)		
			Main References (Sources)		
			Recommended supporting books and references (scientific journals, reports, etc.)		
			Electronic references, websites		

1.	Course name
computer applications1	
2.	Course code
IKUMP0106	
3.	semester/year
2024-2025	
4.	Date this description was prepared
2025	
5.	Available attendance forms
	My presence
6.	Number of study hours (total) / Number of units (total)
	30 hours
7.	Name of the course administrator (if more than one name is mentioned)
	Name: Nouris Riyad Nehme Email:nawres.riyadh.iku@atu.edu.iq
8.	Course objectives

1. The student should be able to explain the concept of a computer, its hardware and software components, and its different generations. 2. The student should be able to distinguish between the different generations of computers and identify the characteristics of each generation. 3. The student should be able to use the operating system efficiently to manage files and settings and perform basic tasks. 4. The student should be able to create text documents using Microsoft Word, applying appropriate formatting and inserting tables and images. 5. The student will be able to design professional presentations using Microsoft PowerPoint, adding motion effects and illustrative elements. 6. The student should be able to use Microsoft Excel to enter data, perform calculations, and create charts. 7. The student should be able to compare different operating systems and identify the advantages and disadvantages of each. 8. The student should be able to analyze data using the tools available in Excel to extract information and make decisions. 9. The student should be able to	Course objectives

explain the basics of the Internet and email, and understand how to use them for research and effective communication.	

9. Teaching and learning strategies	
Theoretical and practical lectures	Strategy

).Course structure

Evaluation method	Learning method	Name of unit or topic	Required learning outcomes	watches	week
Paper-based tes	Theoretical and practical				

Computer Course Syllabus: First-Year

Week No.	Content	No. of Hours
1.	**Introduction to Computer:** Concepts of Hardware and Software with their components.	1
2.	**Introduction to Computer (Cont.):** Concept of Computing, Data and Information; Applications of Information Connecting input/output devices, and peripherals to CPU.	1
3.	**Computer Components:** Computer Portions, Hardware Parts, I/O Units.	1
4.	**Computer Components (Cont.):** Memory Types: Volatile and Non-Volatile Memory, Secondary Storage.	1
5.	**Computer Components (Cont.):** CPU Components: Control Unit (CU), Arithmetic Logic Unit (ALU) and Registers	1
6.	**Computer Components (Cont.):** Computer Ports, Personal Computer (Features and Types)	1
7.	**Operating System and Graphical User Interface GUI:** Operating System; Basics of Common Operating Systems; The User Interface, Using Mouse Techniques;	1
8.	**Operating System and Graphical User Interface GUI (Cont.):** Use of Common Icons, Status Bar, Using Menu and Menu-selection,	1

9.	**Operating System and Graphical User Interface GUI (Cont.):** Concept of Folders and Directories, Opening and closing of different Windows; Creating Short cuts.	1
10.	**Operating System and Graphical User Interface GUI (Cont.):** Customization and Personalization of GUIs, Accessibility Features in GUIs, User Experience (UX)	1
11.	**Word Processing:** Word Processing Basics; Basic Features of Word Processors, Openingand Closing of documents;	1
12.	**Word Processing (Cont.):** Text creation and Manipulation; Formatting Text and Paragraphs, Using Templates for Document Creation.	1
13.	**Word Processing (Cont.):** Creating and Managing Tables, Utilizing Styles and Themes.	1
14.	**Word Processing (Cont.):** Spell Check and Grammar Tools, Using Headers and Footers.	1
15.	**Spread Sheet:** Introduction to Spreadsheet Software, Creating and Formatting Worksheets.	1
16.	**Spread Sheet (Cont.):** Sorting and Filtering Data, Using Formulas and Functions.	1
17.	**Spread Sheet (Cont.):** Using Formulas and Functions, Using Pivot Tables for Data Analysis.	1
18.	**Spread Sheet (Cont.):** Data Validation and Error Checking, Data Visualization: Creating Charts and Graphs.	1
19.	**Presentation Software:** Introduction to Presentation Software, Overview of Popular Presentation Tools, Creating a New Presentation.	1
20.	**Presentation Software (Cont.):** Using Templates and Themes, Inserting and Formatting Text and Images, Transition and Animation Effects	1
21.	**Presentation Software (Cont.):** Using Speaker Notes and Timers, Advanced Features: Hyperlinks and Action Buttons.	1
22.	**Presentation Software (Cont.):** Troubleshooting Common Presentation Issues, Future Trends in Presentation Technology.	1
23.	**Introduction to Internet and Web Browsers:** Computer networks Basic; LAN, WAN.	1
24.	**Introduction to Internet and Web Browsers (Cont.):** Concept of Internet and its Applications; connecting to internet.	1
25.	**Introduction to Internet and Web Browsers (Cont.):** World Wide Web; Web Browsing software's, Search Engines.	1
26.	**Introduction to Internet and Web Browsers (Cont.):** Understanding URL; Domain name; IP Address.	1
27.	**Communications and Emails:** Basics of electronic mail; Getting an email account; Sending and receiving emails; Accessing sent emails; Using Emails; Document collaboration.	1
28.	**Communications and Emails (Cont.):** Sending and receivingemails; Accessing sent emails; Using Emails; Document collaboration.	1
29.	**Introduction to Cloud Computing and Services:** Definition of Cloud Computing and its concept, Cloud-Based Office Suites (Office 365 and Google Workspace).	1
30.	**Introduction to Cloud Computing and Services (Cont.):** Google Workspace: Google Docs, Google Sheets, Google Drive, Google Meet.	1

1. Course Evaluation		
Grade distribution from100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, reports, etc.		
2. Learning and teaching resources		
	Required textbooks (methodology if any)	
Computer Basics book by Al-Khader Ali Al-Khader	Main references (sources)	
	Recommended supporting books and references (scientific journals, reports...)	
	Electronic references, websites	

1. Course name	
English language -1	
2. Course code	
IKUMP0109	
3. semester/year	
2024-2025	
4. Date of preparation of this description	
4/11/2024	
5. Available attendance forms	
My presence	
6. Number of study hours (total) / Number of units (total)	
30 hours / 2 units	
7. Course Supervisor Name (if more than one name is mentioned)	
Name: Star Jabbar	
8. Course objectives	
○ Student definition of listening and perception skills. ○ Student definition of speaking skills. ○ Developing the student's awareness of scientific and applied aspects. ○ Teaching the student the correct pronunciation. ○ Teaching the student to pronounce English vocabulary correctly. ○ Teaching the student English grammar. ○ Teaching students the skills of understanding and comprehension in the English language. ○ Teaching students English speaking skills. ○ Teaching students the method of dialogue and discussion in the English language	Course objectives
9. Teaching and learning strategies	
Theoretical lectures	Strategy

10. Course structure					
Evaluation method	Learning method	Name of unit or topic	Required learning outcomes	watches	week
Exams	Lectures	Introductory lectures on English language vocabulary, an introduction to the course contents, and the scientific foundations for correctly employing the linguistic information in the book.	Introducing the student to the scientific material and giving him an idea about 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 on the topic with the app.	2	3
Exams	Lectures	Unit Three-All About You	Learn vocabulary and grammar on the topic with the app.	2	4
Exams	Lectures	Unit Four-Family & Friends	Learn vocabulary and grammar on the topic with the app.	2	5

Exams	Lectures	Unit Five-The Way I Live	Learn vocabulary and grammar on the topic with the app.	2	6
Exams	Lectures	Unite Six- Every Day	Learn vocabulary and grammar on the topic with the app.	2	7
Exams	Lectures	Unite Seven- My Favorite	Learn vocabulary and grammar on the topic with the app.	2	8
Exams	Lectures	Unit Eight - Where I Live	Learn vocabulary and grammar on the topic with the app.	2	9
Exams	Lectures	Unite Nine- Times past	Learn vocabulary and grammar on the topic with the app.	2	10
Exams	Lectures	Unite Ten- We Had a Great Time	Learn vocabulary and grammar on the topic with the app.	2	11
Exams	Lectures	Unite Eleven - I Can Do That	Learn vocabulary and grammar on the topic with the app.	2	12
Exams	Lectures	Unite Twelve- Please & Thank You	Learn vocabulary and grammar on the	2	13

			topic with the app.		
Exams	Lectures	Unite Thirteen- Here & Now	Learn vocabulary and grammar on the topic with the app.	2	14
Exams	Lectures	Unite Fourteen- It's Time to Go	Learn vocabulary and grammar on the topic with the app.	2	15

11. Course Evaluation	
20 marks: theoretical exam 10 marks: Classroom activity 70 marks: Final exam	
12. Learning and teaching resources	
• Beginner Workbook with key Headway Plus • Headway plus	Required textbooks (methodology if available)
	Main References (Sources)
	Recommended supporting books and references (scientific journals, reports, etc.)
	Electronic references, websites

car maintenance1

Curriculum vocabulary

Units	Weekly hours			First academic year	The language of instruction is Arabic	Name of the material car maintenance1
	M	A	N			
10	5	3	2			

Vocabulary details	week
A brief history of the car, an explanation of the number, tools and equipment used in car maintenance, the basic components of the car (the chassis, the engine, the clutch, the transmission, the driveshaft, the rear axle, the front axle, the suspension, and the steering).	1
Types of gasoline engines (four-stroke, two-stroke) Explanation of four-stroke engines	2
Explanation of two-stroke engines, the basic differences between four-stroke and two-stroke engines	3
Diesel engines, their types (four-stroke, two-stroke), explanation of four-stroke engines Two-stroke diesel engines explained, the basic differences between gasoline and diesel engines Explanation of rotary and turbine engines and their comparison with conventional engines	4-6
Basic engine components Fixed parts: cylinder block, its components, dry and wet cylinder, their faults, Methods of detection, cylinder cover, its components, cylinder cover parts Moving parts: crankshaft, crankshaft bearings, crankshaft lubrication, Causes of crankshaft bearing failure	7-9

Connecting rods, methods of connecting them to pistons, pistons of all types, heat distribution on pistons Valves, seat guides, valve types, valve cooling methods	
Air intake system - its components - pressure drop - air cooler - exhaust system intake manifold shapes - its components - spark arrestors - exhaust silencer	10
The principle of operation of the carburetor - fuel atomization (mixing fuel and air) - carburetor components - an idea about mechanical fuel injection	11
Central electronic fuel injection systems - types - parts - injection systemsCFI – TBI – MONO Injection System	12-13
Multi-point electronic fuel injection systems - types - parts - injection systems -DGI – L – LU – LH – PFI – SFI – Moronic	14-17
Systems (water cooling system - its parts - chemical fluids used as antifreeze and rust inhibitor - spark plug cover - expansion methods)	18
Thermostat - Types - How They Work	19
Lubrication system - Lubrication pump - Types - Parts - Lubrication cycle	20
Lubrication system malfunctions - methods of detection and maintenance	21
Definition of the ignition system operating principle - spark advance and delay devices	22
Electronic ignition system - types - components - ignition system control - effect of ignition timing on engine power	23
Engine repair methods and troubleshooting methods Equipment and tools needed for turning cylinders, crankshafts and camshafts The process of removing carbon and deposits from the combustion chamber Dimensions used in cylinder lathe	24-26
Ignition disturbance at free and high speeds Checking the pressure and temperature regulators of the injection system Slapping - Pounding - Difficulty igniting	27-28
Learn about engine diagnostic and troubleshooting devices	29-30

Management, occupational safety and service stations

Course Name: Management, Occupational Safety and Service Stations Item code:IKUMP0208		Weekly hours			
30	week	theoretical	practical	applied	total
Language of instruction: Arabic		2	-		2

Objective of the course

Providing a clear, comprehensive and integrated picture of the various functions and operations of the industrial organization and the fundamental principles and foundations of management that lead to effective coordination and efficient control of the interrelationships between the various functions and introducing the student to how to design model workshops that service the car and how to calculate the costs of those stations

Vocabulary details	Week
A historical overview of industrial security, its impact on	1

production efficiency, and industrial security rules.	
Control - the requirements and procedures to prevent and reduce the occurrence of an incident	2
General rules and regulations for accident prevention	3
Personal Protective Equipment - Firefighting and Control Methods	4
Management - Management Concepts	5
Administrative jobs - wages and their types	6
Administrative Levels - Industrial Organization The organizational structure of the industrial establishment	7
Motion study - Time measurement study - Factor diagram - Machine	8
Material Control - Purchasing	9
Warehouses - Warehouse Inventory - Stock Control	10
Leadership and the Effective Manager - Types of Managers - Characteristics and Qualities of Managers	11
Industrial Relations - Public Relations - Public Relations Jobs	12
General maintenance concept - factory maintenance - impact of maintenance	13
Types of soap - Maintenance costs - Maintenance planning	14
Maintenance objectives - types in terms of location and work	15
Station definition - Types of stations - Detailed explanation	16
Visit to a model car maintenance station	17
Various service departments at the car maintenance station	18
Heavy Duty, Electrical, Structural and Painting Departments	19
Calculate the area of administration, parking, showroom and warehouse	20
Calculating the workforce, calculating the needs of each department for workers, and calculating the total number	21
A complete explanation of the meaning of direct and indirect costs	22
A full explanation of the comparison and the principles on which it is relied upon to extract any comparison	23
How to calculate the price for parking cars at the station	24
Car repair quote	25
Comparison of passenger transport by car	26

How to set a price for selling a used car	27
Report on one of the previous topics and discuss it	28
Scientific films about modern workshop design	29
Drawing of typical workshops for service stations	30

Engineering Mechanics

Subject name:mechanics Item code:IKUMP0103		Weekly hours			
30	week	theoretical	practical	applied	total

Language of instruction: English		2	1		3

the subject aim: the student will be able to understand the mechanics science because it represents on of the scientifically basic the universal and special technique and it has the improvements of the solution of technical problems.

Item	Week
Introduction & topics of mechanics – definition of mechanics science & the branches.	1
Force ; resolution and result i- Victors ii- Analytic + applications	3-2
Moment of the force & applications couples' applications.	7-6-5-4
Equilibrium' definition & the conditions and applications.	9-8
Free body diagram procedure of the drawing "fbd"	10
Friction - theory and application types of friction -coefficient of friction -angle of friction.	12-11
Center of gravity & centroid applications -lines	13
Center of gravity & centroid - application - single area	14
Moment of initial. Definition, single area	16-15
Moment of inertial application i-parallel axis theory ii-transfer of axis	17-18
Dynamics Science Definition The Newton`S Second Law And Application	19
Rectilinear motion definition and applications	20
Free fall lows and application	21
Curvilinear motion low`s and applications	22
Rotational motion about the fixed axes	23
Strength of material, sort of strain	24
Strength of material, sort of the stress	25
Drawing the curve of the stress force	26
Tension and compresses	27
Sheering force, definition and application	28
Pascal & archimedes theory and lows, applications	29

benully formula, applications	30