

## Curriculum for Associate Degree Program in Automobile Maintenance Specialization

The curriculum of associate degree in “Automobile Maintenance” specialization consists of (72 credit hours) as follows:

Serial No.	Requirements	Credit Hours
First	University Requirements	12
Second	Engineering Program Requirements	17
Third	Specialization Requirements	43
<b>Total</b>		<b>72</b>



**The curriculum of associate degree  
in  
Automobile Maintenance Specialization**

**First:** University requirements (12 credit hours) as follows:

Course No.	Course Title	Credit Hours	Weekly Contact Hours		Prerequisite
			Theoretical	Practical	
22001101	Arabic Language	3	3	-	
22002101	English Language	3	3	-	
21901100	Islamic Culture	3	3	-	
21702101	Computer Skills	3	1	4	
<b>Total</b>		<b>12</b>	<b>10</b>	<b>4</b>	

**Second:** Engineering program requirements (17 credit hours) as follow:

Course No	Course Title	Credit Hours	Weekly Contact Hours		Prerequisite
			Theoretical	Practical	
20201111	Engineering Workshops	1	-	3	-
20204111	AutoCAD	2	-	6	-
20506111	Occupational Safety	2	2	-	-
21301111	General Mathematics	3	2	2	-
21302111	General Physics	3	2	2	-
21302112	General Physics Laboratory	1	-	3	-
21702111	Communication Skills and Technical Writing	3	2	2	22002101
20201121	Engineering Materials	2	2	-	-
<b>Total</b>		<b>17</b>	<b>10</b>	<b>18</b>	

تطبق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008 ❖

**Third:** Specialization Requirements (43 credit hours) as follows:

Course No.	Course Title	Credit Hours	Weekly Contact Hours		Prerequisite
			Theoretical	Practical	
20301111	Electricity and Electronics	2		0	21302111*
20301112	Electricity and Electronics Laboratory	1	0	3	20301113*
20211171	Hydraulic Fluid Power	3	2	3	
20211111	Gasoline Engines and Lithe Diesel Engines	2	2		
20211112	Gasoline Engines and Lithe Diesel Engines Workshop	2	-	6	20211111*
20211113	Modern Engines Technology	2	2	-	
20211114	Modern Engines Maintenance and Repair Workshop	2	-	6	20211113*
20211121	Vehicles Chassis Systems	2	2	-	
20211122	Vehicles Chassis Systems Workshop	2	-	6	20211121*
20211131	Automotive Power Drives Line Units	3	1	6	
20211211	Modern Diesel Engines Fuel Systems	2	2	-	
20211212	Modern Diesel Engines Fuel Systems Workshop	2	-	6	20211211*
20211241	Painting and Body Repair Workshop	2	-	6	
20211151	Automotive Electrical and Power Accessories Systems	2	2	-	20301111
20211152	Automotive Electrical and Power Accessories Systems Workshop	2	-	6	20211151*
20211261	Automotive Troubleshooting and Maintenance	2	2	-	
20211262	Automotive Troubleshooting and Maintenance Workshop	2	-	6	20211261*
20409111	Industrial Supervision	2	2	-	20506111
20211291	Training**	3	0	-	-
20211292	Project	3	0	-	-
<b>Total</b>		<b>43</b>	<b>17</b>	<b>54</b>	

\*-Co-requisite

\*\* Equivalent to 280 training hours



تطبق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008 ❖

## Guiding Plan

First Year					
First Semester			Second Semester		
Course ID	Course Name	Credit Hours	Course ID	Course Name	Credit Hours
21302111	General Physics	3	20201111	Engineering Workshops	1
21302112	General Physics Lab.	1	20301111	Electricity and Electronics	2
20506111	Occupational safety	2	20301112	Electricity and Electronics Lab.	1
22002101	English Language	3	21301111	General Mathematics	3
21702101	Computer Skills	3	20211121	Vehicle Chassis Systems	2
20204111	AutoCAD	2	20211122	Vehicle Chassis Systems Workshop	2
20211111	Gasoline Engines and Lite Diesel Engines	2	20211113	Modern Engines Technology	2
20211112	Gasoline Engines and Lite Diesel Engines Workshop	2	20211114	Modern Engines Maintenance and Repair Workshop	2
			20211171	Hydraulic Fluid Power	3
<b>Total</b>		<b>18</b>	<b>Total</b>		<b>18</b>

Second Year					
Third Semester			Fourth Semester		
Course ID	Course Name	Credit Hours	Course ID	Course Name	Credit Hours
20409111	Industrial Supervision	2	20211241	Painting and Body Repair Workshop	2
20211151	Automotive Electrical and Power Accessories Systems	2	21901100	Islamic Culture	3
20211152	Automotive Electrical and Power Accessories Systems	2	20211261	Automotive Troubleshooting and Maintenance	2
20211131	Automotive Power Drives Line Units	3	20211262	Automotive Troubleshooting and Maintenance Workshop	2
20201121	Engineering Materials	2	21702111	Communication Skills and Technical writing	3
20211211	Modern Diesel Engines Fuel Systems	2	20211291	Training	3
20211212	Modern Diesel Engines Fuel Systems	2	20211292	Project	3
22001101	Arabic Language	3			
<b>Total</b>		<b>18</b>	<b>Total</b>		<b>18</b>

تطبق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008 ❖

## Brief Course Description

### University Requirements

Course Title	Course No	Credit Hours ( Theoretical /Practical)
<b>Arabic Language</b>	<b>22001101</b>	<b>3 (3-0)</b>
<p>تتضمن هذه المادة مجموعة من المهارات اللغوية بمستوياتها وأنظمتها المختلفة: الصوتية، والصرفية، والنحوية، والبلاغية، والمعجمية، والتعبيرية، وتشتمل نماذج من النصوص المشرقة: قرآنية، وشعرية، وقصصية، من بينها نماذج من الأدب الأردني؛ يتوخى من قراءتها وتذوقها وتحليلها تحليلاً أدبياً؛ تنمية الذوق الجمالي لدى الطلاب الدارسين.</p>		
<b>English Language</b>	<b>22002101</b>	<b>3 (3-0)</b>
<p>English 1 is a general course. It covers the syllabuses of listening, speaking, reading, writing, pronunciation and grammar, which are provided in a communicative context. The course is designed for foreign learners of the English language, who have had more than one year of English language study. The extension part would be dealt with in the class situation following the individual differences.</p>		
<b>Islamic Culture</b>	<b>21901100</b>	<b>3 (3-0)</b>
<ol style="list-style-type: none"> <li>1. تعريف الثقافة الإسلامية وبيان معانيها وموضوعاتها والنظم المتعلقة بها – وظائفها وأهدافها.</li> <li>2. مصادر ومقومات الثقافة الإسلامية والأركان والأسس التي تقوم عليها.</li> <li>3. خصائص الثقافة الإسلامية.</li> <li>4. الإسلام والعلم، والعلاقة بين العلم والإيمان</li> <li>5. التحديات التي تواجه الثقافة الإسلامية.</li> <li>6. رد الشبهات التي تثار حول الإسلام.</li> <li>7. الأخلاق الإسلامية والآداب الشرعية في إطار الثقافة الإسلامية.</li> <li>8. النظم الإسلامية.</li> </ol>		
<b>Computer Skills</b>	<b>21702101</b>	<b>3 (1-4)</b>
<p>An introduction to computing and the broad field of information technology is given. Topics covered include the basic structure of digital computer system, microcomputer, operating systems, application software, data communication and networks, and the internet. Hands-on learning emphasizes Windows xp, MS-office2000, and the internet.</p>		

❖ تطبق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008

**Engineering Program requirements**

<b>Engineering Workshops</b>	<b>20201111</b>	<b>1 (0-3)</b>
Development of basic manual skills in Mechanical and Electrical works. Use of manual tools and measuring devices. Hand filing, welding, metal cutting and forming. Electrical wiring.		
<b>AutoCAD</b>	<b>20204111</b>	<b>2 (0-6)</b>
Introduction to AutoCAD, application of AutoCAD, commands, geometric entities. Geometric construction. Dimensioning, free –hand sketching, object representation, orthographic drawing and projections.		
<b>Occupational safety</b>	<b>20506111</b>	<b>2 (2-0)</b>
Role of technicians in economic development First aid accident prevention. Protective devices and equipment. Industrial safety standards. Nature of fire hazards. Sand fire regulations. Physiological effects of electrical shock on human body. First aid and treatment for the effects of electric shock. Rules of spare and chemicals storage and handing.		
<b>Communication Skills and Technical Writing</b>	<b>21702111</b>	<b>3 (2-2)</b>
The main goal of this course is to equip the students with the necessary communication skills in everyday life & work situations and improve their abilities in technical writing to meet market needs. For this course, the English language is the language of teaching & the means of communication for all classroom situations.		
<b>Engineering Materials</b>	<b>20201121</b>	<b>2 (2-0)</b>
Definition of engineering materials. Classification of materials and their properties. Metallic and non-metallic materials. Metals, alloys and composite materials. Conductors, insulators and semiconductors. Mechanical, Magnetic, Thermal and electrical characteristics of materials. Industrial applications of different types of materials.		
<b>General Mathematics</b>	<b>21301111</b>	<b>3 (2-2)</b>
Real numbers coordinate planes, lines, distance and circles. Functions: (operations and graphs on functions), limits, continuity, limits and continuity of trigonometric functions. Exponential and logarithmic functions. Differentiation (techniques of differentiation, chain rule, implicit differentiation). Application of differentiation (increase, decrease, concavity). Graphs of polynomials. Applications: Rolle's Theorem and Mean-Value Theorem, Integration (by substitution, definite integral, fundamental theorem of Calculus). Application of definite integral (area between two curves, volumes)		
<b>General Physics</b>	<b>21302111</b>	<b>3 (2-2)</b>
Physics and measurement, motion in one dimension, vectors, laws of motion, circular motion, energy and energy transfer, potential energy, linear momentum and collisions, electric fields, Gauss's law, electric potential, capacitance and dielectrics, current and resistance, direct current circuits, magnetic fields, sources of the magnetic field, and Faraday's law of electromagnetic induction.		

تطبق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008 ❖

**General Physics lab****21302112****1 (0-3)**

In this course, the student performs thirteen experiments in mechanics and in electricity.

**Specialization Requirements****Electricity and Electronics****20301111****2 (2-0)**

Concepts and definitions, electrical circuit elements, voltage, current, resistance, capacitance and inductance, ohms law and dc circuit Calculations. Ac Circuits. Three phase circuits, transformers, and electrical machines. Basic electronic devices and circuits. Introduction to electrical protection.

**Electricity and Electronics Lab.****20301112****1 (0-3)**

DC and AC circuits. Current and voltage measurements. Simple electronic circuits. DC and AC machines. Single-phase transformers. Protection devices and circuits.

**Hydraulic Fluid Power****20211171****3 (2-3)**

Hydraulic fluid properties, density, viscosity and pressure, Pascal's Principle and Archimedes Principle, The Equation of Continuity. Bernoulli's Equation. Hydraulic components. Hydraulic circuits. Electric drive control.

Practice covers: hydraulic pumps, proportional valves, pressure relieve valves, solenoid valves, single acting and double acting cylinders, hydraulic circuits and electrical drive control.

**Gasoline Engines and Lithe Diesel Engines****20211111****2 (2-0)**

Four stroke – cycle engine operation ,physical and chemical fundamentals of four stroke – cycle engines , engines types and classification ,comparison between gasoline and diesel engines ,engine construction ,valves and valve train ,engine systems ( cooling ,lubricating ,fuel ,ignition) ,engine measurement ,engine performance and drivability diagnosis

**Gasoline Engines and Lithe Diesel Engines Workshop****20211112****2 (0-6)**

Identification of gasoline and diesel engines .Engine components disassembly, testing, servicing and reassembly. Engine systems disassembly, testing, servicing and reassembly. Engine timing. Engine performance testing (compression test, leakage test, vacuum test) .Engine performance and drivability problems diagnosis and repairing.

**Modern engines Technology****20211113****2 (2-0)**

Modern engine specifications ,Air-Fuel ratio ,Electronic Fuel injection systems ,Electronic ignition systems ,Engine Management systems , Air induction systems ,Turbo charging system ,Emission control system.

تطبق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008 ❖

<b>Modern Engines Maintenance and Repair Workshop</b>	<b>20211114</b>	<b>2 (0-6)</b>
Maintenance and repair of Electronic Fuel injection systems ,Electronic ignition systems ,Engine Management systems , Air induction systems ,Turbo charging system ,Emission control system.		
<b>Vehicles Chassis Systems</b>	<b>20211121</b>	<b>2 (2-0)</b>
Fundamentals of Automobile systems: Steering system, Braking system, suspension system Wheels and Tiers and wheel alignment. Computerizes Chassis systems {Anti-lock Braking system (ABS),Traction control system(TCS) ,Electronic stability program(ESP) ,Electronic steering systems ,Electronic suspension systems}		
<b>Vehicles Chassis Systems Workshop</b>	<b>20211122</b>	<b>2 (0-6)</b>
Safety procedures. Tools, instruments. Assembly, disassembly and servicing of suspension system, steering system, braking system ,Wheels and Tiers ,Wheel alignment and Computerizes chassis systems. Computerizes chassis systems fault diagnosis by using Scan Tools.		
<b>Automotive Power Drives Line Units</b>	<b>20211131</b>	<b>3 (1-6)</b>
Fundamentals of clutch system, manual transmission, automatic transmission, propeller shaft and universal joints, final drive, differential and axles. Maintenance and repair of clutch system, manual transmission, automatic transmission, propeller shaft and universal joints, final drive, differential and axles.		
<b>Modern Diesel Engines Fuel Systems</b>	<b>20211211</b>	<b>2 (2-0)</b>
Fundamentals of diesel fuel injection system, in-line diesel fuel pump, distributor type diesel fuel pump, injectors, electronic diesel control system (EDC), common rail diesel fuel system (CRDI).		
<b>Modern Diesel Engines Fuel Systems Workshop</b>	<b>20211212</b>	<b>2 (0-6)</b>
Maintenance and repair of diesel fuel system, servicing in-line fuel pump, distributor pump and injectors, adjusting and tuning diesel fuel pumps by using test pinch, repair and maintenance of electronic diesel control system and common rail system.		
<b>Painting and Body Repair Workshop</b>	<b>20211241</b>	<b>2 (0-6)</b>
Paint types and components, sand techniques, preparing bar metal for painting, use of primers, masking techniques, painting equipments, paint types. Types of welding, electric- arc welding, MIG welding, oxy-acetylene welding, brazing, basic chassis, car body maintenance equipments. Old paint removal, sanding, preparing bar metal for painting, preparing the paint, painting, polishing, applications in different types of welding ( electric arc, MIG, oxy-acetylene, brazing),		

metal sheet fabrication, change or reform the side doors, replace the windshield glass, chassis reforming.

<b>Automotive Electrical and Power Accessories Systems</b>	<b>20211151</b>	<b>2 (2-0)</b>
Introduction, battery, starting system, charging system, air conditioning system(HVAC), lights, safety and signaling system , wiring harnesses, instrument panel, windows and mirrors immobilizer system ,security and alarm system ,wiper and washer system ,horn system computer controlled lighting system ,driver information and controls systems .Automotive electrical circuit diagrams .		
<b>Automotive Electrical and Power Accessories Systems Workshop</b>	<b>20211152</b>	<b>2 (0-6)</b>
Battery testing, starting system and charging systems: diagnostics and maintenance. lights, safety and signaling system maintenance and repair .air conditioning system(HVAC) maintenance and repair .wiring harness ,instrument panel ,windows and mirrors ,maintenance and repair. Immobilizer system, security and alarm system, wiper and washer system maintenance and repair diagnosing electrical problems.		
<b>Automotive Troubleshooting and Maintenance</b>	<b>20211261</b>	<b>2 (2-0)</b>
Automotive maintenance record and schedules. Six steps troubleshooting plane. Using the symptoms chart and troubleshooting matrix .Troubleshooting no self diagnosis systems .Troubleshooting self diagnosis systems .Check engine light. Procedures to retrieve trouble codes. Troubleshooting with (AVO) meter .Diagnosis with SCAN tools. Troubleshooting by using Auto-data.		
<b>Automotive Troubleshooting and Maintenance Workshop</b>	<b>20211262</b>	<b>2 (0-6)</b>
Equipments and devices for automotive diagnosis, Maintenance and Repair. Personal skills in performing inspection and service of cars Components: engine, transmission, brake system, steering system, suspension system and electrical equipments.		
<b>Industrial Supervision</b>	<b>20409111</b>	<b>2 (2-0)</b>
Supervision duties training knowledge job, introduction job standards, job analysis, training needs study, training programs and curriculum, training evaluation, subordinates appraisal, job organization, production order form filling.		
<b>Training</b>	<b>20211291</b>	<b>3 (280 training hours)</b>
Equivalent to (280 hours) of field training targeted to emphasize the ability of students to apply the theories in the real world of the profession.		
<b>Project</b>	<b>20211292</b>	<b>3</b>
An integrated assembly/design practical work related to the major fields of study.		