



Engineering Program

Specialization	Automotive Maintenance
Course Number	20211152
Course Title	Automotive electrical & power accessories systems workshop.
Credit Hours	2
Theoretical Hours	0
Practical Hours	6



Brief Course Description:

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.

Course Objectives:

Upon the completion of this course, the student will be able to:

1. Removing, disassembly, servicing, reassembly and installing automotive electric systems components.
2. Testing automotive electrical systems.
3. Enterprising electrical circuits.
4. Trouble shooting automotive electrical systems troubles.



Detailed Course Outline:

Unit Number	Unit Title	Unit Content	Time Needed (hr)
1.	Servicing the Battery	<ul style="list-style-type: none"> ▪ Safety precaution. ▪ Battery charging and replacing. ▪ Hydrometer test. ▪ Open- circuit voltage test. ▪ Battery load test. ▪ Battery trouble diagnosis. 	6
2.	Servicing the starting system	<ul style="list-style-type: none"> ▪ Safety precaution. ▪ Disassembly, servicing and assembly of starting motor. ▪ Starting motor testing. ▪ Starting system trouble diagnosis. 	12
3.	Servicing the charging system	<ul style="list-style-type: none"> ▪ Safety precaution. ▪ Disassembly, servicing and assembly of alternator. ▪ Charging system checking and testing. ▪ Charging system trouble diagnosis. 	12
4.	Servicing lighting ,signaling and horn system	<ul style="list-style-type: none"> ▪ Practice on headlight, clearance light and tail lights. ▪ Practice on stop light and back up light ▪ Practice on direction indicator and hazard warning system. ▪ Practice on horn system. ▪ Lighting, signaling and horn system trouble diagnosis. 	12
5.	Servicing the instrument panel	<ul style="list-style-type: none"> ▪ Practice on coolant temperature indicator. ▪ Practice on fuel level indicator. ▪ Practice on oil pressure indicator. ▪ Practice on speedometer and odometer ▪ Practice on open door warning lamp, seat belt lamp, hand brake lamp and charging system warning lamp. 	6
6.	Servicing windows and mirrors systems	<ul style="list-style-type: none"> ▪ Safety precaution. ▪ Practice on driver window main switch 	12

		<ul style="list-style-type: none"> drive. ▪ Practice on door sub switch drive. ▪ Practice on window motor . ▪ Practice on electrical side mirrors. ▪ Windows and mirrors trouble diagnosis 	
7.	Servicing immobilizer, door lock and alarm systems	<ul style="list-style-type: none"> ▪ Immobilizer programming. ▪ Practice on door lock system. ▪ Practice on alarm system. 	9
8.	Servicing wiper and washer system	<ul style="list-style-type: none"> ▪ Removal, installation of wiper and blade assembly. ▪ Wiper motor test. ▪ Testing automatic stop action. ▪ Practice on washer system. ▪ Wiper and washer system trouble diagnosis. 	12
9.	Servicing ventilating, heating and air conditioning system.	<ul style="list-style-type: none"> ▪ Safety precaution. ▪ Practice on heating system. ▪ Air conditioner visual inspection. ▪ Servicing the air conditioning system. ▪ Discharging and recovering refrigerant. ▪ Replacing air conditioner components. 	12

Evaluation Strategies:

Exams		Percentage	Date
Exams	First Exam	20%	
	Second Exam	20%	
	Final Exam	50%	
	Assignment	10%	

Teaching Methodology:

- ❖ Workshop

References & Text Book

Instructional Workshop. Sheets.



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