



Engineering Program

Specialization	Automotive Maintenance
Course Number	20211112
Course Title	Gasoline and lithe diesel engines workshop
Credit Hours	2
Theoretical Hours	0
Practical Hours	6



Brief Course Description:

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.

Course Objectives:

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

1. Identify the different types of gasoline and lithe diesel engines.
2. Interpret the instruction of service manuals related to engine removal and installation.
3. Safely remove and install the engine of light vehicle in a correct procedure.
4. Remove, dismantle engine accessories and components.
5. Check the operation of engine prior to removal and after installation.
6. Make measurements and inspection on engine main components.
7. Explain the measurements results and take action.



Detailed Course Outline:

Unit Number	Unit Title	Unit Content	Time Needed(hr)
1.	Servicing engine top end	<ul style="list-style-type: none"> ▪ Removing, inspection of camshaft and rocker arms ▪ Removing, cleaning, inspection of cylinder head ▪ Removing , inspection and reinstall of valves assembly ▪ Valves grinding and re facing ▪ Roller and hydraulic lifters inspection ▪ Cylinder head assembly ▪ Valve clearance adjustment 	18
2.	Servicing engine bottom end	<ul style="list-style-type: none"> ▪ Cylinder block inspection ▪ Cylinder block measurements ▪ Inspection measurements of the piston and connecting rod assembly ▪ Inspection and measurements of crankshaft assembly ▪ Engine bottom end components reassembly 	22
3.	Servicing engine front end	<ul style="list-style-type: none"> ▪ Remove , inspection and reinstall vibration damper ▪ Remove , inspect and reinstall timing belt ▪ Remove , inspect and reinstall sprockets ,tensioner and idler pulleys ▪ Assembly engine front end components 	6
4.	Serving engine cooling system	<ul style="list-style-type: none"> ▪ Radiator remove , inspect and reinstall ▪ Water pump remove , inspect and reinstall ▪ Thermostat remove , inspect and reinstall 	8

		<ul style="list-style-type: none"> ▪ Drive belt and pulley remove , inspect and reinstall ▪ Radiator fan motor remove , inspect and reinstall ▪ Engine coolant hoses and pipes inspection and installation ▪ Coolant leak test ▪ Radiator cap pressure test ▪ Coolant temperature indicator checking ▪ Cooling system trouble shooting 	
5.	Servicing lubrication system	<ul style="list-style-type: none"> ▪ Removing and installation the oil filter ▪ Removing , inspecting and reinstallation oil pump ▪ Checking oil pressure indicator ▪ Lubrication system trouble shooting 	6
6.	Servicing carburetor fuel system	<ul style="list-style-type: none"> ▪ Disassembly , cleaning , inspection and reassembly carburetor ▪ Adjustment the carburetor in the engine ▪ Removing , cleaning , inspection and reinstall the fuel tank ▪ Removing , inspecting and reinstallation fuel pump ▪ Removing , inspection and installation the fuel filter ▪ Checking fuel lines and indicators ▪ Fuel system trouble shooting 	10



7.	Servicing the conventional ignition system	<ul style="list-style-type: none"> ▪ Removing and reinstall the distributor ▪ Disassembly and inspect and reassembly the distributor ▪ Adjusting the static timing ▪ Stroboscopic timing ▪ Checking the low tension circuit ▪ Checking the high tension circuit ▪ Fitting and adjusting contact break point ▪ Cleaning , gapping and fitting the spark plugs 	8
8.	Servicing diesel fuel system	<ul style="list-style-type: none"> ▪ Removing , cleaning and inspection the fuel tank ▪ Removing and reinstalling the fuel filters ▪ Checking fuel pipes ▪ Removing , inspection and reinstallation the glow plugs ▪ Fuel system bleeding 	8
9.	Engine mechanical problems diagnosis	<ul style="list-style-type: none"> ▪ Engine noisy diagnosis ▪ Engine compression test ▪ Engine vacuum test 	8

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

Teaching Methodology:

- ❖ Workshop

References & Text Book

1. Instructional workshop sheets



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