

COURSE TITLE : AUTOMOBILE SERVICING LAB II
COURSE CODE : 5058
COURSE CATEGORY : B
PERIODS/WEEK : 4
PERIODS/SEMESTER: 60
CREDITS : 2

TIME SCHEDULE

Module	Topic	Periods
1	Dismantling and Assembling of Clutch and its Repair works	15
2	Dismantling and Assembling of Gearbox, Rear Axles and its Repair works	15
3	Dismantling and Assembling of Suspension system, Steering system and its Repair works	15
4	Dismantling and Assembling of all components in brake system and its Repair works	15
TOTAL		60

GENERAL COURSE OUTCOME

Sl.No.	sub	Student will be able
	1	Perform Checking and repairing of Clutch for clutch plate thickness, run-out, rivet depth, warpage of pressure plate
	2	Perform Checking and adjusting differential for ring gear run-out, backlash in ring gear, tooth contact between ring gear and pinion, bearing preload
	3	Identify different types of suspension systems (dismantling and assembling including front and rear suspension).
	4	Conduct Inspection and repair of master cylinder, wheel cylinder, brake drum, brake disc, brake linings and brake pads. Perform brake bleeding
	5	Drive and test the vehicle

SPECIFIC COURSE OUTCOME

MODULE I

- 1.1.0 Perform Checking and repairing of Clutch for clutch plate thickness, run-out, rivet depth, warpage of pressure plate.
- 1.1.1 Carryout adjustment of clutch.
Identify troubles, Causes and remedies of clutch.
- 1.1.2 Perform Checking gearbox for run out of main shaft and lay shaft, for wear of synchronizer and worn bearings, checking oil seals.
- 1.1.3 Identify Troubles, Causes and remedies of gearbox

MODULE II

- 2.1.0 Perform Checking and adjusting differential for ring gear run-out, backlash in ring gear, tooth Contact between ring gear and pinion, bearing preload.
- 2.1.1 Dismantle the front axle and transaxle – replace king pin and bushes
Dismantle different types of rear axles
- 2.1.2 Identify Troubles, Causes and remedies of propeller shaft, differential, front axle and rear axle

MODULE III

- 3.1.0 Identify different type suspension systems by dismantling and assembling including front and rear.
- 3.1.1 Identify steering linkages and dismantle different types of steering gear boxes.
Adjust steering play

MODULE IV

- 4.1.0 Conduct Inspection and repair of master cylinder, wheel cylinder, brake drum, brake disc, brake Linings and brake pads, Perform brake bleeding.
- 4.1.1 Removal of wheels, tyre and tube
- 4.1.2 Driving practice – Able to drive and test the vehicle

CONTENT DETAILS

MODULE I

1. Dismantling of clutches – different types – coil spring and diaphragm spring – single plate, multiplate etc. Identify the parts and their function, assemble it and adjust it – refit it to the vehicle by using clutch aligns. Clutches of 2 wheelers and 3 wheelers, tractors, trailers and tillers.
2. Dismantling different types of gearboxes – and over drive, sliding mesh, constant mesh and synchromesh progressive type etc. Identify different parts and their functions, calculate gear ratios, Assemble and refit it to the vehicle

MODULE II

1. Dismantling the universal joint and propeller shaft – study the slip joint and universal joint refit to the vehicle.
2. Dismantling the differential assembly – study the purpose and working of differential – assemble and adjust back lash.
3. Dismantling the front axle and transaxle – replace king pin and bushes – study the parts – check the alignment of the axle and refit
4. Dismantling the different types of rear axles – full floating, semi floating, and 3/4 floating – study the arrangements

MODULE III

1. Identification of different type suspension systems by dismantling and assembling – dismantle rigid spring type and torsion bar type. Dismantle the Mac Pherson strut type – assemble and refit to the vehicle
2. Dismantling the leaf spring – adjust the camber and refit – study the shock – absorbers of different types
3. Identification of steering linkages – dismantle worm and roller type, recirculating ball type, rack and pinion type etc. Adjust steering play. Checking and adjusting of wheel alignment

MODULE IV

1. Dismantling the hydraulic brakes system including master cylinder, wheel cylinders, brake shoes, retracting spring etc. Assemble the system and bleed the brake and adjust. Study the different units of vacuum serve and air brakes units and their functions.
2. Study different tools and accessories of brake re-lining machine, removing old lining and re-line with new lining materials
3. Removal of tyre and tube. Testing, vulcanising, filling air and refitting of tyre
4. Checking the braking efficiency of a vehicle
5. Driving practice – Able to drive and test the vehicle

REFERENCE:

M L Mathur & R P Sharma - Internal combustion Engines – Dhanpat Rai