4055 - AUTOMOBILE CHASSIS - I

Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)			
Lectures	Practical	Credits			Theory		Practical Ex.	Total
3	2	5	25	25	3 Hrs	100	-	150
Pre-requisite		Source						
Nil		AUT						

Semester	Theory	Test	Total	TW	PR	Gr Total
	75	25	100	50	–	150

Rationale: In an automobile repair shop it is required to diagnose the fault and give a solution to the existing problem. This course is introduced with a view towards familiarizing a student with the different parts of chassis so that he is in a reasonable position, after some practical exposure, to carry out the activity of fault finding and repair. This course is so designed and aims at the following objectives.
To know the layout of a vehicle; To know the different types of clutches and how they function; To know the necessity of gear-box and different types of gear boxes.; To know about the propeller shafts, differential and about front and rear axles; To know about the different types of brakes

COURSE CONTENTS	Hrs	Mks
1. VEHICLE LAYOUT Layout of Vehicles, Types of Chassis frames, Convention, Semi-Integral and Integral unitised construction, location of different components, mounting materials, hydrodynamic theory of lubrication, chassis lubrication	7	15
2. CLUTCHES Working principle of clutches, construction & Working of different types of clutches – single plate clutch, multiple clutch, semi-centrifugal clutch, centrifugal clutch, diaphragm clutch, cone clutch, dog and spline clutch, clutch plate lining, clutch pedal free play.	14	25
3. GEAR BOX Necessity of gear box, Construction and working of different types of gear boxes – sliding Mesh, constant Mesh, Synchronising unit, forward and Reverse ratios, gear shift mechanism.	9	20
4. PROPELLER SHAFT, AXLE, DIFFERENTIAL Open and covered propeller shafts, universal joints, slip joint, Front and Rear axles – live and Dead Axles, Rear Drive Axle – Full Floating, Three Quarter Floating, Two wheel and four wheel Drive, Transfer case. Conventional – Differential – Need and Working	9	20
5. BRAKES Functions, Construction & working of different types of brakes: Air brakes, Mechanical brakes, Hydraulic brakes, Vacuum brakes, Master and wheel cylinders, brake oil.	9	20
Total	48	100

PRACTICAL: List of Experiments

Dismantling, inspection, adjustments and assembling of single plate clutch; Removal and refitting of clutch from engine; Dismantling – assembling of synchromesh gear box – gear ratio calculations; Propeller shaft universal joint dismantling assembling; Dismantling of differential unit – assembling; Servicing of brakes, dismantling of master cylinder, wheel cylinder – assembly, Air bleeding of the brake system – adjustment of brakes

REFERENCE BOOKS:

1. Automatic Mechanics by Cronse & Anglin
2. Automatic Mechanics by Joseph Heitner
3. Auto Engineering by B. S. Narang
4. Automobile Engineering by Dr. Kirpal Singh
5. Auto Mechanics by Dr. Giri