

4056 - GARAGE EQUIPMENT									
Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)				
Lectures	Practical	Credits			Theory		Practical Ex.		Total
3	1	4	25	25	3 Hrs	100	-		150
Pre-requisite		Source	Semester	Theory	Test	Total	TW	PR	Gr Total
Nil		AUT		75	25	100	25	-	125

Rationale: Garage tools and equipment form an important component of any maintenance and repair facility. It is ultimately the judicious selection and proper usage of these tools and equipment, which will decide between a good repair job and a poor one. Thus it is of vital importance that the student of automobile engineering should be familiar with the working principle & functioning of the various tools and equipment necessary to carry out the maintenance and repair of automobiles. This course is so designed and aims at achieving the following objectives: To familiarise a student with the various kinds of tools and equipment required in an auto repair shop. To understand the function and working principle of various tools and equipment

COURSE CONTENTS		Hrs	Mks
1. HAND TOOLS		5	14
Specifications and uses of spanners, pliers, creaper, scrapers, screw drivers, taps, dies, drifts, punches reamers, snips, Allen Keys, torque wrench, hammers, vices, hydro, nut splitter, circlipplier			
2. SPECIAL TOOLS		15	29
Battery testing equipment, carburettor, repair kit, grease guns, Mechanical and hydraulic jacks, trolley jack, pulley block, screw extractor, piston ring expander, valve spring compressor, vehicle props, arbor press, compression gauge, tube repair kit, spark plug tester, spark plug cleaner.			
3. INSPECTION TOOLS		8	17
Specifications and uses of Combination Set, callipers, Vernier callipers, pitch gauges, cylinder dial gauge, dial gauges, feeler gauges, flat micrometer, wire micrometer, micrometer, straight edge, Bevel protractor, Surface plate, V-block, Height gauge, Callipers, Vernier depth gauge, Trammels.			
4. RECONDITIONING AND SERVICING EQUIPMENT		8	17
Specifications and use of Air Compressors, Arbor press, oil pump blowers, Car washers-water and steam, brake drum turning lathe, crane, cylinder honing machine, cylinder boring machine, cylinder head refacing machine, distilled water plant, nozzle lapping, nozzle grinding machine, crankshaft and cam shaft grinding machine valve refacing machine, flexible shaft grinder, sanders, polishers, engine stands, tyre changer, hydraulic hoist, battery charging, spray painting equipment			
5. INSPECTION AND TESTING EQUIPMENT		12	23
Method of testing and use of compression gauge vacuum gauge, multimeter, petrol flow meter, timing light, brake efficiency tester, bearing noise tester, dynamometer – hydraulic, electrical & mechanical, engine analyser, ignition tester, fuel injection pump, Calibration & tester, wheel alignment gauge, tyre pressure gauge, Bosch/Hartridge smoke tester, exhaust gas analyser, wheel balancer. Engine oscilloscope, engine press measurement(Piezo elect, Mechanical)			
Total		48	100

PRACTICALS: List of Experiments

1. Demonstration on exhaust gas analysis
2. Demonstration on fuel pump calibration & phasing
3. Brake service testing