

# GUJARAT TECHNOLOGICAL UNIVERSITY

## B. E. SEMESTER: VI Automobile Engineering

Subject Name: **Vehicle Maintenance and Garage Practice**

Subject Code: **160204**

Teaching Scheme				Evaluation Scheme		
Theory	Tutorial	Practical	Total	University Exam (Theory) (E)	Mid Sem Exam (Theory) (M)	Practical (I)
2	0	4	6	70	30	50

Sr. No.	Course Contents	Total Hrs
1.	<b>Vehicular Maintenance Practices:</b>  Types of maintenance schedules (daily, weekly and monthly) in respect of the Scheduled maintenance chart shown in service book of a vehicle, Break down, Preventive, Predictive maintenance practices.	5
2.	<b>Measuring Instruments:</b>  Measuring instruments for wear, Fuel consumption, speed, acceleration, vibration, noise.	3
3.	<b>Maintenance &amp; Overhauling of Aggregates:</b>  a) Cylinder Block bore – measurement, Cylinder boring/Cylinder liners fitting, honing. b) Cylinder head - facing, valve seat lapping. c) Study Valve timing & Fuel injection pump timing procedure and timing gear train. Rocker arm gap adjustment/setting procedure. d) Petrol Engine - Carburetor- tuning and setting of MPFI engines. e) Diesel engine - Fuel injection pumps and fuel injector's calibration. f) Cleaning of water cooling system, water pump & radiator maintenance. g) Gear box - repairing of gear box and shifting mechanism. h) Final drive and differential maintenance, differential back lash adjustment. i) Wheels and tyre maintenance, re-treading of tyres, wheel balancing. j) Steering system linkages, Wheel alignment: toe in, toe out, caster and camber. k) Hydraulic brakes circuit- brake adjustment, bleeding of brakes. l) Study of Air Brakes circuit & system components m) Chassis greasing, wheel bearing greasing, Bearing Preload adjustment. n) Suspension system – lubrication, maintenance. o) Adjustment of clutch pedal free play, repair/replacement of clutch parts. p) Repair & maintenance of Propeller shaft "U" joints and Centre bearing. q) Maintenance & repair practices for Leakage of Oil, Engine Oil	15

	<p>consumption.</p> <p>r) Maintenance &amp; repair practices for radiator Coolant leakage and overheating of Engine.</p> <p>s) Diagnosis for Low fuel average complaint.</p> <p>t) Diagnosis for starting trouble in Petrol &amp; Diesel engines (including Air lock).</p> <p>u) Diagnosis for poor pick up complaint.</p> <p>v) Diagnosis for Low engine oil pressure complaint.</p> <p>w) Maintenance &amp; repair of electrical and ignition system</p>	
<b>4.</b>	<p><b>Garage Practice:</b></p> <p>Service station, functions and operations, activities, depot and workshop layouts. Study of Garage measuring instruments and testing, calibration, repair equipments: their function, usage and testing procedures. Repairing processes and machines used for servicing and lubrication. Transport services or State Transport undertaking workshop layout.</p>	<b>4</b>
<b>5.</b>	<p><b>Workshop management practice:</b></p> <p>Study of Workshop documents &amp; records (job cards, bill, satisfaction voucher, history sheet, manufacturer's service coupon book, warranty policy etc.) Study of Workshop Manual, Parts Catalogue and Parts price list. Billing procedure.</p> <p>Customer complaint Handling &amp; consumer cases in case of any dispute.</p>	<b>5</b>

### **Text books:**

1. Automotive mechanics by Crouse, TMH
2. Automobile system by Anil Chikara.

### **Reference Books:**

1. K.K.Ramlingan, Automobile Engineering, SciTech Publication.
2. Joseph Heitner, Automechanics, East West Press.
3. Pattern and Donald, Automotive Service Basics, Pearson Publications.
4. Vehicle Service book.
5. Vehicle Workshop Manual.
6. Parts Price List.