

ATGE 323 - Automotive Maintenance & Management

(02 credits – 50 marks)

Course Outcomes:

After completion of the course, students are expected to be able to:

CO1	Carry out the complete maintenance and management of automotive system.
CO2	Do the critical analysis of breakdown and preventive maintenance.
CO3	Inspect engine components to ensure proper performance.
CO4	Design layout of garage.

Module I: Introduction to maintenance Management

(06 hours)

Importance of maintenance, scheduled and unscheduled maintenance, preparation of check lists, analysis of breakdown, preventive measures, unit replacement system, maintenance schedule, chassis lubrication schedule, component retrieval, estimating repair cost, warranty period, servicing, Inspection forms, Log books, Trip sheets, Other maintenance record forms, Garage practice: Types of service station/garage, layout of garage, Factors affecting layout, transport service undertakings, design a layout for different garage

Module II: Engine Maintenance

(07 hours)

Dismantling of engine components, cleaning methods, visual inspection and dimensional check of various engine components, minor and major tune up, reconditioning and repairing methods of engine components. Assembly procedure, special tools used for maintenance, repair and overhauling. Cooling Systems-Anti corrosion and antifreeze solutions, radiator, and thermostat. Lubrication oil topping up, oil change, oil relief valve; fuel feed systems, FIP adjustment and testing, Ultrasonic fuel injector testing

Module III: Chassis and Drive line Maintenance

(05 hours)

Chassis and drive line maintenance: Mechanical automotive type gear box, synchromesh gear box, Universal joint, propeller shaft, Automatic Transmission, front and rear suspension systems, brake systems-hydraulic, servo, Air bleeding, Steering system, Axles, wheel alignment-tyres

Module IV: Electric System Maintenance**(06 hours)**

Battery testing method, starter motor, charging system - a DC generator, AC alternator, regulator, ignition system- coil ignition, transistor assisted ignition, capacitor discharge ignition, Alternator Testing, Electric horn, wiper motor, flasher, electric fuel pump, gauges. Lighting system- head lights focusing. Wiring harness testing.

Module -V Tutorials, case studies and presentation based on Module I to IV (06 hours)**References:**

1. John Doke "Fleet Management", McGraw-Hill Co.
2. Maleev. V.L., "Diesel Engine operation and Maintenance", Maintenance, McGraw Hill book Co., New York
3. Judge. A.N., "Motor vehicle engine servicing, 3rd, Edition", Pitman Paperpack, London,
4. Judge. A.W., "Maintenance of High speed diesel engines", Chapman Hall Ltd., London,
5. John. W.Vale.J.R., "ModernAut Body and Finder repair".
6. Venk. Spicer. "Automotive Maintenance and Trouble shooting"
7. "Vehicle Service Manuals of reputed manufactures."