

AMAE-16 AUTOMOTIVE ELECTRICAL AND ELECTRONICS SYSTEM

UNIT-1 BATTERIES AND STARTING SYSTEM

- 1.1 Different types of Batteries
- 1.2 Principle, rating, testing and charging.
- 1.3 Starter motors characteristics, capacity requirements.
- 1.4 Drive mechanisms. Starter switches.

UNIT-2 CHARGING SYSTEM LIGHTING AND ACCESSORIES

- 2.1 DC Generators and Alternators their characteristics.
- 2.2 Control unit- cut out, electronic regulators.
- 2.3 Vehicle interior lighting system.
- 2.4 Vehicle exterior lighting system.
- 2.5 Wiring requirements. Lighting design.
- 2.6 Dashboard instruments. Horn, trafficator.

UNIT-3 ELECTRONIC IGNITION AND INJECTION SYSTEM

- 3.1 Spark plugs. Advance mechanisms.
- 3.2 Different types of ignition systems.
- 3.3 Electronic fuel injection systems, mono and multi-point fuel injection system (MPFI).

UNIT-4 SENSORS AND MICROPROCESSORS IN AUTOMOBILES

- 4.1 Basic sensor arrangements.
- 4.2 Types of sensors- oxygen sensor, hot wire anaemometer sensor,
- 4.3 Vehicle speed sensor, detonation sensor, Accelerometer sensor, crank position sensor.
- 4.4 Microprocessor and microcomputer controlled devices in automobiles such voice warning system,
- 4.5 Travel information system, keyless entry system, Automatic transmission system, electronic steering system.

UNIT-5 SAFETY SYSTEMS

- 5.1 Antilock braking system, air bag restraint system,
- 5.2 Voice warning system, seat belt system,
- 5.3 Road navigation system, anti-theft system.

References Books:

1. Young.A.P., & Griffiths.L., "Automobile Electrical Equipment", English Language Book Society & New Press, 1990
2. Spreadbury. F.G., "Electrical Ignition Equipment", Constable & Co Ltd., London, 1962
3. Robert N Brady "Automotive computers and Digital Instrumentation". A Reston Book, Prentice Hill, Eagle Wood Cliffs, New Jersey, 1988.