

AMAG26 HYDRAULIC DRIVE AND CONTROLS

UNIT-1 HYDRAULIC BASICS

- 1.1 Pascal's Law, Flow, Energy, Work, and Power. Hydraulic Systems,
- 1.2 Color Coding, Reservoirs, Strainers and Filters, Filtering Material and Elements.

UNIT-2 ACCUMULATORS

- 2.1 Pressure Gauges and Volume Meters, Hydraulic Circuit, Fittings and Connectors.
- 2.2 Pumps, Pump Classifications, Performance, Displacement,
- 2.3 Designs, Gear Pumps, Vane Pumps, Piston Pumps, Pump Operation.

UNIT-3 HYDRAULIC ACTUATORS

- 3.1 Cylinders,- Construction and Applications,- Maintenance, Hydraulic Motors. Valves,
- 3.2 Pressure Control Valves, Directional Control Valves, Flow Control Valves,
- 3.3 Valve Installation, Valve Failures and Remedies.

UNIT-4 VALVE ASSEMBLY

- 4.1 Troubleshooting Valves Hydraulic Circuit Diagrams and Troubleshooting,
- 4.2 United States of American Standards Institute USASI Graphical Symbols Tractor hydraulics, nudging system, ADDC.

UNIT-5 PNEUMATICS

- 5.1 Air services, logic units, Fail safe and safety systems
- 5.2 Robotics: Use of Hydraulics and Pneumatics drives in agricultural systems, PLCs (Programmable Logic Controls).

Reference Books:

1. John Watton. Fluid Power Systems: modelling, simulation and microcomputer control. Prentice Hall International.
2. Khaimovitch. Hydraulic and Pneumatic control of Machine Tools.
3. Lewis, E.E., and H. Stern. Design of Hydraulic Control Systems. New York; Mc Graw Hill.