

AMCH11 FLUID FLOW

UNIT-1 FLUID STATICS AND ITS APPLICATIONS

- 1.1 Hydrostatic Equilibrium,
- 1.2 Application of Fluid Statics

UNIT-2 FLUID FLOW PHENOMENA

- 2.1 Laminar flow,
- 2.2 Shear rate, Shear stress,
- 2.3 Rheological Properties of Fluids,
- 2.4 Turbulence,
- 2.5 Boundary Layers.

UNIT-3 BASIC EQUATIONS OF FLUID FLOW

- 3.1 Mass balance in a flowing fluid,
- 3.2 Differential Momentum Balance, Equations of Motion,
- 3.3 Microscopic Momentum Balances

UNIT-4 INCOMPRESSIBLE FLOW IN PIPES

- 4.1 Shear Stress and skin friction in pipes Laminar flow in pipes & channels Turbulent flow in pipes & channels.

UNIT-5 FLOW OF COMPRESSIBLE FLUIDS

- 5.1 Definition & Basic Equations,
- 5.2 Processes of Compressible flow,
- 5.3 Isentropic flow through Nozzles,
- 5.4 Adiabatic Friction Flow, and Isothermal Friction Flow.

UNIT-6 FLOW PAST IMMERSED BODIES

- 6.1 Drag & Drag Coefficients,
- 6.2 Flow through Beds of solids,
- 6.3 Motion of particles through fluids, fluidization.

Reference Books:

1. Hydrodynamics in Theory and Applications” by J M Robertson
2. Fundamentals of Compressible Flow” by S.M. Yahya