

## Unit - 1

Pre requisite to HMs:- Basics of FM

Properties of fluids.

1. Density
2. Viscosity
3. Temperature
4. Pressure
5. Specific volume
6. Specific weight
7. Specific gravity

1. Density =  $\frac{\text{Mass}}{\text{Volume}}$   $\text{kg/m}^3$ .

● Density  $\uparrow \leftarrow$  Temp  $\uparrow$ . ( $PV = mRT \Rightarrow P = \left(\frac{m}{V}\right)RT \Rightarrow P = \rho RT$ ).

2. Viscosity: Resistance offered by fluid

3. Temperature: degree of hotness (or) coldness.

4. Pressure:  $F/A$

5. Specific volume:  $\frac{V}{\text{mass}}$   $\therefore v = \frac{V}{m}$   $\text{m}^3/\text{kg}$

6. Specific weight:  $\frac{\text{weight}}{\text{unit volume}}$   $\text{N/m}^3$ .

● 7. Specific Gravity  $S$ :  $\frac{\text{Specific weight of given fluid}}{\text{Specific weight of standard fluid}}$ .

Specific weight of water is  $9.807 \text{ kN/m}^3$ .

Specific gravity of water is 1

Specific gravity of mercury 13.633.