



SNS COLLEGE OF TECHNOLOGY

AN AUTONOMOUS INSTITUTION



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DEPARTMENT OF FOOD TECHNOLOGY

COURSE CODE & NAME: 19MEB201-FLUID MECHANICS AND MACHINERY
II YEAR / III SEMESTER
UNIT : I
TOPIC 1:INTRODUCTION



INTRODUCTION

- WHAT IS FMM?
- What is Fluid ?
- A substance that has no fixed shape and yields easily to external pressure; a gas or a liquid.
- What is Fluid Mechanics and Machinery ?
- Mechanics deals about motion of the fluid flow , static or in motion Machinery deals about conversion of potential energy in to electrical energy with the help of rotary machines



BRANCHES IN FMM

- Hydrodynamics :

The study of the motion of fluids that are practically incompressible

- Hydraulics:

Hydraulics deals with liquid flows in pipes and open channels.

- Gas dynamics

Density changes - flow of gases through nozzles

- Aerodynamics

Gases (especially air) -aircraft, rockets, and automobiles at high or low speeds. Note: specialized categories meteorology, oceanography, and hydrology deal with naturally occurring flows.



- Surface tension.
- Capillarity.
- Pascal's law and hydrostatic law.
- Absolute Pressure.
- Gauge and vacuum pressures.



PROPERTIES OF FLUIDS

Surface Tension: (σ)

Ability of a liquid to act like a thin, flexible film

Unit: N/m

Absolute Pressure:

Absolute pressure is **the sum of gauge pressure and atmospheric pressure**. For reasons we will explore later, in most cases the absolute pressure in fluids cannot be negative. Fluids push rather than pull, so the smallest absolute pressure is zero. (A negative absolute pressure is a pull.)



Capillarity:

is the ability of a liquid to flow in narrow spaces without the assistance of, or even in opposition to, external forces like gravity. In small diameter tubes Surface tension and Adhesive force propels the fluid raise in the tube



Pascal's Law

- A moving magnetic field causes an electric current to flow through conductive material.
- An electromagnetic sensor can be used to measure this induced electrical current.



PRESSURE MEASURING DEVICES

- U Tube manometer also called a liquid column manometer used for low differential pressure measurement Range of pressure 0.2 MPa or 2 Kg/cm²

- **PRESSURE MEASURING DEVICES** used to measure: gauge pressure of both gaseous and liquid fluids



THANK YOU..."