



# Chandigarh College of Engineering & Technology

Government Institute under UT Administration, Affiliated to Panjab University

CHANDIGARH COLLEGE OF ENGINEERING AND TECHNOLOGY, SECTOR 26, CHANDIGARH		
Experiment No-6		Rev = 1
Subject: Fluid Mechanics Lab.	Subject Code: MEC-456	Semester: 4

**Experiment:** To determine the friction coefficients for pipes of different diameters.

**Equipment required:** Darcy's apparatus

**Description of equipment's to be used:**

1. Darcy's apparatus consists of two pipes with different pipes
2. One common inlet valve is provided in the main supply line for the whole apparatus.
3. A measuring tank.

**Theory:**

While the nature of flow depends upon the Reynolds Number, the frictional resistance offered to the flow of fluids depends essentially on the roughness of the surface of the conduit carrying the flow. In laminar flow this frictional resistance is mostly due to viscous resistance of fluid to flow. In turbulent flow it is due to resistance offered by viscosity of fluid and surface roughness of the conduct this frictional resistance causes loss of head which is given by Darcy and Weisbach equation:

$$h_f = \frac{4fLV^2}{2gD}$$

Where  $f$  is called Darcy's friction factor and given by  $f = 64/Re$  for laminar flow and depends upon relative roughness of pipe in case of turbulent flow.

$L$  = Pipe length

$V$  = Velocity

$D$  = Diameter of pipe

# Mechanical Fm Lab Manual

**D Keegan**



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