SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF AGRICULTURE ENGINEERING

R2019-FLUID MECHANICS AND MACHINERY

II YEAR III SEM

UNIT 2 – FLOW THROUGH CONDUITS

TOPIC 1 – INTRODUCTION

ORGANISATION

- What is mean by Flow through conduits?

- Need of Conduits in Fluid mechanics?

- Students, need of studying this concept?

- Scope, for implementation in practical and real life

- Contribution of this concept towards

    - Academic research

    - Industry research

- Assessment –MCQ / Match the following

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WHAT IS MEAN BY FLOW THROUGH CONDUITS?

A conduit is any pipe, tube, or duct that is completely filled with a flowing fluid

Conduits can transport two types of flow

- **Pressurized conduit flow** - Transport of Water in closed conduits - Pipes

- **Open channel conduit flow** - liquid flow within a conduit - Channels

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NEED OF CONDUITS IN FLUID MECHANICS ?

- To carry the Fluid (Liquid, Vapour and Gases) from one point to another point

- Knowledge on the fluid flow

- Interface on Mechanics and materials needed as prerequisite to meet higher semesters courses

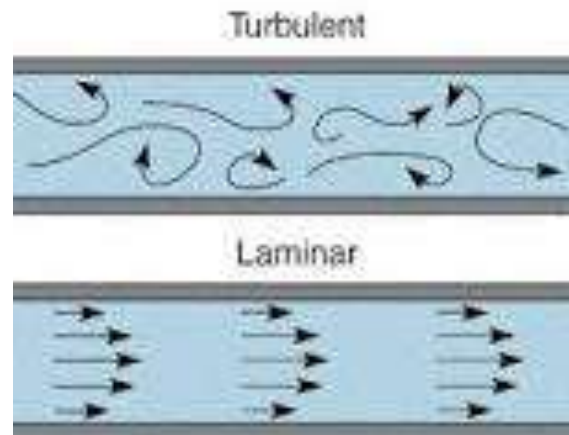- Analysis of fluid Charetcteriscs in terms of Computation using Mathematical techniques
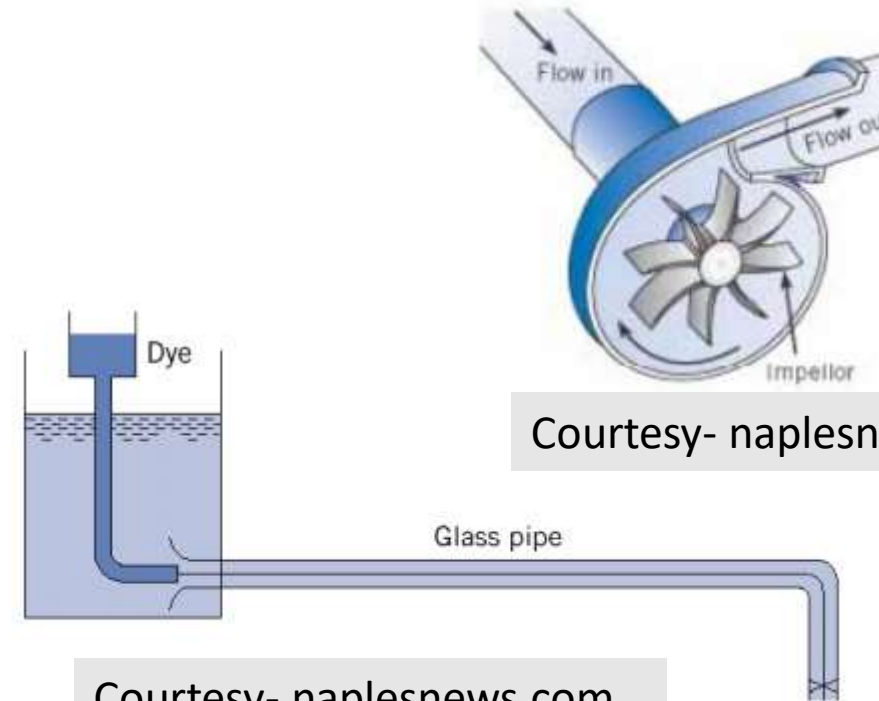
STUDENTS, NEED OF STUDYING THIS CONCEPT ?

Understand the need of fluid property study

To design the project and startups

- To gain the knowledge on flow properties

- Laminar

- Turbulent

Courtesy- naplesnews.com

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SCOPE FOR IMPLEMENTATION IN PRACTICAL AND REAL LIFE

Guess the Application?

Courtesy- naplesnews.com

Courtesy- naplesnews.com

Courtesy- bermad.com.au

ASSESSMENT

1.In which method of fluid flow analysis do we describe the motion

parameters at a point?

a) Langragian method

b) Eulerian Method

c) Control volume analysis

d) None of the mentioned

Answer: b
Explanation: In Eulerian method, we describe velocity, acceleration pressure etc at a point in flow field.

2. Which method is most commonly used in fluid mechanics for analysis?

a) Langragian method

b) Eulerian Method

c) Control volume analysis

d) None of the mentioned

Answer: b

Explanation: In Eulerian method,we describe velocity, acceleration pressure etc at a point in flow field.hence, it is also most commonly used in fluid mechanics.

ASSESSMENT

3.The liquid flowing through a series of pipes can take up_____

a) Pipes of different diameters

b) Pipes of the same diameters only.

c) Single pipe only

d) Short pipes only

Answer: a
Explanation: When pipes of different diameters are connected at its ends to form a pipe, this pipe so developed is called as pipes in series. They might not have to be of the same diameters. But, having the same diameters are better as it avoids the losses so developed.

4. What is the total loss developed in a series of pipes?

a) Sum of losses in each pipe only

b) Sum of local losses only

c) Sum of local losses plus the losses in each pipe

d) Zero

Answer: c
Explanation: When the pipes of different diameters are connected in series from end to end to form a pipe line. The total loss so developed is equal to the sum of local losses plus the losses in each pipe. The local losses are developed at the connection point.

ASSESSMENT

5.Which among the following is not a loss that is developed in the

pipe?

a) Entry

b) Exit

c) Connection between two pipes

d) Liquid velocity

Answer: d
Explanation: Liquid velocity in the pipe is the velocity with which the liquid travels through different cross sections of the pipe. It is a vector field which is used to describe the motion of a continuum. The length of flow velocity vector is equal to the flow speed.

ASSESSMENT

6.Give Example for the Flow indicated in the chart
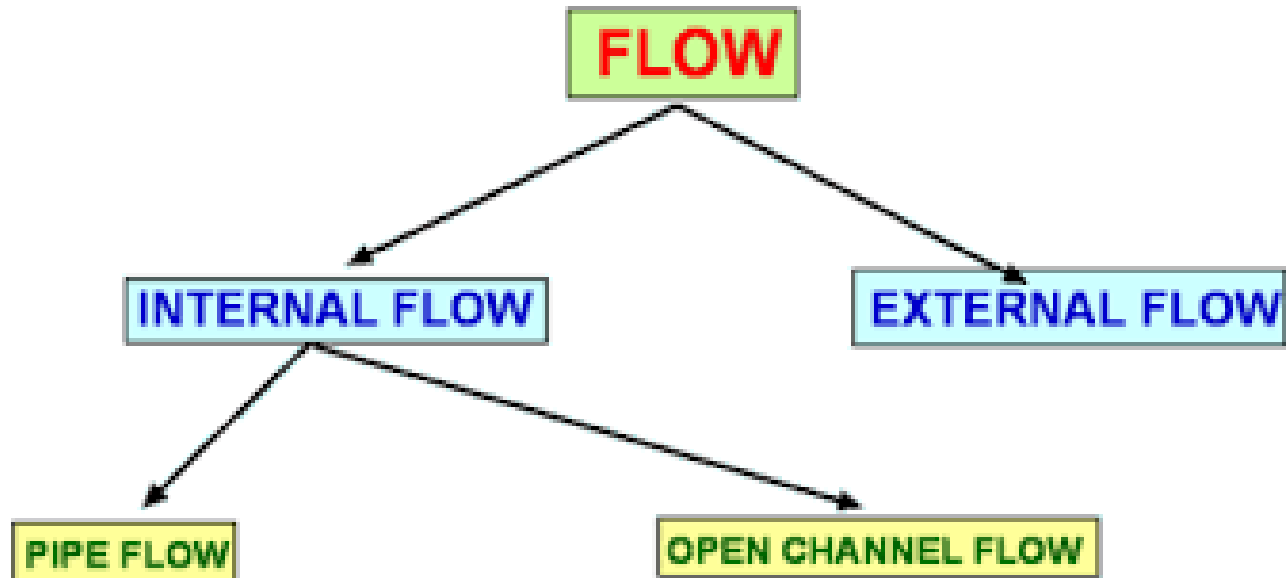
ASSESSMENT

7.What type of conduit is indicated in the sketch?

Courtesy- naplesnews.com

ASSESSMENT-MATCH THE FOLLOWING

Sl.No.	DESCRIPTION	SERIES	EQUIVALANCE
1.	Density	A.	10^5 N / m^2
2.	Piezometer	B.	V^{-1}
3.	Mass density	C.	One limb
4.	Pressure	D.	1 cm^3
5.	Bar	E.	T^{-1}
6.	Pressure	F.	ML^{-3}
7.	1ml	G.	Force per area

ASSESSMENT-MATCH THE FOLLOWING- ANSWER

1-E

2-C

3-F

4-G

5-A

6-B

7-D

REFERENCES

WEB REFERENCES

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TEXT BOOK REFERENCES

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Courtesy- G suit (Images)