



RAMCO INSTITUTE OF TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Anna University
Accredited by NAAC & An ISO 9001:2015 Certified Institution
NBA Accredited UG Programs: CSE, EEE, ECE and MECH

Department of Civil Engineering
Academic Year 2022–2023 (Odd Semester)

► Degree, Semester & Branch: III semester B.E Civil Engineering
Course Code & Title: CE3301 & Fluid Mechanics
Name of the Faculty member (s): Mrs.R.Kalaimani

Innovative Practice Description

- **Unit / Topic:** Determination of friction factor in pipes
- **Course Outcome:** CO4
- **Topic Learning Outcome:**
 - ✓ Determine whether a pipe flow is laminar or turbulent flow for specified flow conditions
 - ✓ Calculate the Reynolds number for pipe flow with specified flow conditions
 - ✓ Calculate the entrance length for pipe flow with specified flow conditions
- **Activity Chosen:** Virtual Laboratory
- **Justification:**
 - ✓ Apply the basic engineering concept in friction factors in pipes
 - ✓ Explain the working of friction factors in pipes
- **Time Allotted for the Activity:** 15 minutes
- **Details of the Implementation:**
44 students are participated totally in online virtual simulation lab. Virtual lab also enabled to
- **CO – PO / PSO mapping:**

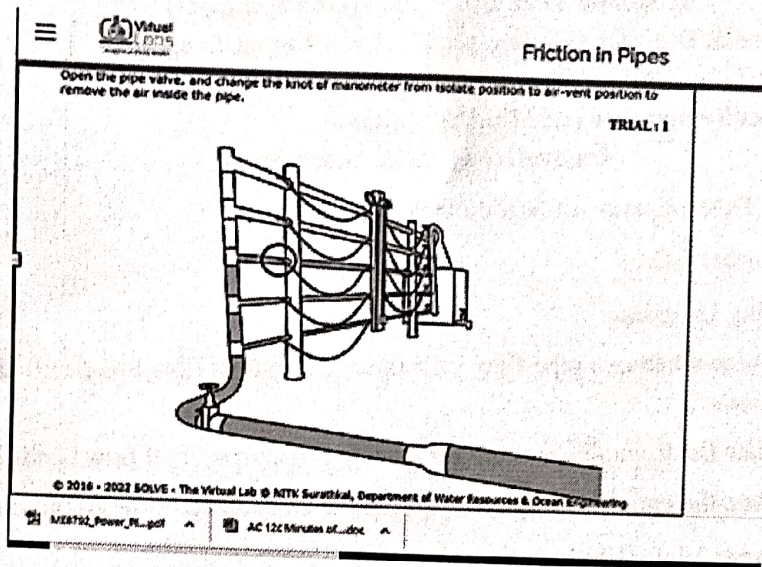
CO	PO1	PO2	PO9	PSO2
CO4	3	1	1	3

(1 – Low 2 – Moderate 3 – High)

- **PO / PSO mapped:**

Innovative practice	PO1	PO2	PO9	PSO2
	3	1	1	3
Justification for correlation	The mechanics behind pipe flow and the energy losses associated with it provides a fundamental engineering knowledge to the student	Analysis of flow through pipes is a promising problem solving area in Civil Engineering	Demonstrate the ability to define a complex problem in frictional losses in pipes	Calculate the major and minor losses at different flow condition

- Images / Screenshot of the practice:



- Reflective Critique:

- ❖ *Feedback of practice from students and other stakeholders:*

The overall feedback from the students were really good and students felt that it is very easy understand the real time operation of friction factor in pipes

- ❖ *Benefit of the practice:* (E.g.: Outcome attainment would have increased due to innovative practice over conventional practice)

- After completing this hand on session in virtual laboratory, the students were able to understand the friction factor in pipes very clearly.
- This virtual simulation also helps the students to know the stability of the system.

- ❖ *Challenges faced in implementation:*

The output of simulation part can be better.

References:

- ❖ <http://fm-nitk.vlabs.ac.in/List%20of%20experiments.html>


Signature of Faculty Member


HOD