Experiment 1: Calibration of Venturi meter and Orifice meter

Instructions:

For submission of this experiment you have to submit **one excel file** and **one PDF** file. Use the naming format: ***rollno_exp1.pdf or xlsx (Ex.183109002_exp1.pdf or xlsx*).** The detailed instructions are given below.

Excel sheet

Fill the columns in the excel sheet provided to you. There are two sheets one for venturi meter and one for orifice meter.

- In the excel sheet you have to plot Cd (act) vs Re for both venturi meter and orifice meter.
- Plot also Cd(ISO) in the graph of Cd(act) vs Re
- For calculation of **Re** use **pipe diameter** not inlet diameter of venturi/orifice meter.
- Properties and formula is provided in the lab manual.

PDF

- In the Pdf you have to scan and **submit hand written document** containing at least one calculation from each table. In that you have to justify all the calculation in excel sheet provided by you is correct and it is for cross validation for TAs and you. There should be step by step **detailed** calculations using all the formulas provided to you.
- And you have to attach the screenshot of graphs and calculated table in the pdf which you have drawn in the excel sheet.(copy pasting will be okay)
- Also you have to write sources of error at least two.
- You have to answer following questions:
    1) Why Cd value is lower in orifice meter than venturi meter?
    2) Why in the venturi meter, the divergent part has lower angle than the convergent part?
    3) Give explanation about why we can't use larger beta ratio and too small beta ratio?
    4) What is vena-contracta and explain why we measure the pressure slightly away from orifice meter?

Thank You.