DEPARTMENT OF AEROSPACE ENGINEERING

Faculty Name	:	**Dr.A.Arun Negemiya, AP/ Aero**	Academic Year	:	**2024-2025 (Odd)**
Year & Branch	:	**II AEROSPACE**	Semester	:	**III**
Course	:	**23AST202 – Fluid Mechanics for Aerospace**			

UNIT I - FLUID PROPERTIES AND FLOW CHARACTERISTICS

1. A 20x10 cm Venturimeter is provided by a vertical pipe line carrying oil of G=0.8. The difference in elevation of the throat section and entrance section of Venturimeter is 0.5 m. The differential U tube Venturimeter shown a gauge difference of 40 cm, Calculate the discharge of oil and pressure between entrance section and throat section. Take Cd = 0.92.

   ϖ

Steps:

D1 = 20 cm

D2 = 10 cm

a1= 314.16 sq.cm and a2= 78.5 sq.cm

$h= x(S_2 /S_1) – 1= ((p_1 /w) + Z_1) – ((p_2 /w) + Z_2)$

h=0.4((13.6/0.8) -1) = 6.4 m

6.4 = (p1/w+0) – (p2/w+0.5)

$p_1/w-p_2/w$ = 6.9 m

$Q = (Cd\ a_1\ a_2\ (2gh)^{1/2})/ (a_1^{\ 2} – a_2^{\ 2})^{½}$