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. An Orifice Meter with orifice diameter 0.15 m is inserted in a pipe of 30 cm diameter. The pressure difference measured by mercury oil differential manometer on the two sided of orifice meter gives a reading of 40 cm of Mercury. Find the rate of flow of oil of G = 0.8, when Cd = 0.62. ϖ

Steps:

D1 = 15 cm D2 = 30 cm

a1= 176.7 sq.cm and a2= 706.85 sq.cm

h= x(S2 /S1) – 1

h=40((13.6/0.8) -1) = 64 0 cm

Cd=0.62

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