

Course no	Course Name	L-T-P-credits	Year of introduction
CH232	FLUID AND PARTICLE MECHANICS LAB	0-0-3-1	2016
Prerequisite: CH205 Fluid and particle mechanics - I			
Course Objectives			
To analyse and apply knowledge of fluid mechanics in realistic situations by performing experiments in flow measuring and fluid moving equipments			
LIST OF EXERCISES/EXPERIMENTS (Minimum of 8 mandatory)			
<ol style="list-style-type: none"> 1. Experiments on Reynolds apparatus for determination of flow regime and construction of fanning friction factor vs. Reynolds No. plot 2. Determination of co efficient of discharge for orifice meter 3. Determination of co efficient of discharge for venturi meter 4. Determination of co-efficient of pitot tube and construction of velocity profile across the cross section of pipe. 5. Determination of co-efficient of discharge for different types of weirs. 6. Determination of pressure drop for flow through packed bed and verification of Ergun equation. Experiment on fluidization techniques and determination of <ol style="list-style-type: none"> (a) Minimum fluidization velocity; (b) Pressure drop profile 7. Determination of efficiency of a centrifugal pump. 8. Pipe line assembling and a layout drawing with standard symbols. 9. Calibration of a Rotameter 10. Determination of viscosity of Newtonian & non-Newtonian fluid by Falling Sphere method 11. Verification of Bernoulli's Theorem 			
Expected outcome			
At the end of the course, the students will able to:			
(i) Plan and perform experiments in flow measuring equipments and analyse the principles involved.			
(ii) Plan and perform experiments in fluid moving machinery and analyse the principles involved.			
(iii) Plan and perform experiments in solid-fluid systems and analyse the principles involved.			
(iv) Demonstrate capacity to work in teams and exhibit knowledge of safety, health and environment by practicing laboratory ethics.			
References			
<ul style="list-style-type: none"> • McCabe W.L. & Smith J.C., Unit Operations of Chemical Engg, McGraw Hill • Streeter V.L., Fluid Mechanics, McGraw Hill • Coulson J.M. & Richardson J.F., Chemical Engg. Vol. 1, Pergamon • Foust, Wenzel, Clump, Maus & Anderson, Principles of Unit Operation 			