

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

Department of Chemical Engineering

COURSE OUTLINE			
Course Title	Momentum Transfer Laboratory		
Course Code	CLLR11	No. of Credits	2
Department	Chemical Engineering	Faculty	Dr.M.Perumalsamy
Pre-requisites	Knowledge on momentum transfer theory		
Course Type	ELR		
COURSE OVERVIEW			
<p>The Momentum Transfer laboratory course is offered for chemical engineering students in the fourth semester to understand and apply the knowledge acquired in momentum transfer theory course. The course content includes flow through pipes, pressure loss in fittings, flow through packed & fluidized beds and establish the friction factor relationship.</p>			
COURSE OBJECTIVES			
<p>To understand and apply the principles and concepts of momentum transfer theory learned in the momentum transfer course</p>			
COURSE OUTCOMES (COs)			
<p>Students must have</p> <ol style="list-style-type: none"> 1. understand and analyze the laminar and turbulent flow characteristics 2. understand, apply and analyze the friction factor 3. understand the flow regime and pump performance 			
COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	Week	Topic	Mode of Delivery
1	1 st week	Flow Through Straight Pipe	Laboratory Experiment
2	2 nd week	Flow Through Pipe Fittings	Laboratory Experiment
3	3 rd week	Flow Through Helical/Spiral Coil	Laboratory Experiment
4	4 th week	Flow Through Packed Bed	Laboratory Experiment
5	5 th week	Flow Through Fluidized Bed	Laboratory Experiment

6	6 th week	Flow Through Flow Meters (Orifice & Venturi)	Laboratory Experiment
7	7 th week	Centrifugal Pump Performance	Laboratory Experiment
8	8 th week	Flow of Non-Newtonian Fluid	Laboratory Experiment
9	9 th week	Pitot-Static tube	Laboratory Experiment
10	10 th week	Redo Experiments	Laboratory Experiment
11	11 th week	External Lab Examination	Laboratory Experiment

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Laboratory Experiment	Every week	3Hrs	75%
2	External Examination	11 th Week	3Hrs	25%

ESSENTIAL READINGS : Textbooks, reference books etc

1. Laboratory Manual
2. W. L. McCabe, J.C. Smith and P. Harriott, "Unit operations of Chemical Engineering", 7th Edn., McGraw Hill, International Edn., 2004.

COURSE EXIT SURVEY (mention the ways in which the feedback about the course is assessed and indicate the attainment also)

- Performance in the assessment methods
- Questionnaire about the effectiveness of the experiments, topics and the knowledge gained

COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)

- 75 % attendance is mandatory.
- Those who are absent for any of the experiments on genuine grounds shall be given an opportunity to do the experiments in the redo class at the end of the session.

- A student has to score a minimum of 35% marks to get a pass.
- Those who fail in the course can appear for the supplementary exam. The total marks will be 100
- Any misbehavior, indiscipline in the laboratory will be dealt with seriously. In the worst case, the departmental disciplinary committee is empowered to debar the student from the course.

FOR SENATE'S CONSIDERATION

Course Faculty M. G. CC-Chairperson S. Saradanan HOD [Signature]