

Department of Mechanical Engineering
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE OUTLINE TEMPLATE			
Course Title	FLUID MECHANICS LABORATORY		
Course Code	MELR13	No. of Credits	1
Department	MECHANICAL ENGINEERING	Faculty	Mr. ARUN NAIR Mr. RAMASAMY S
Pre-requisites Course Code	Engineering Mechanics		
Course Coordinator(s) (if, applicable)	-		
Other Course Teacher(s)/Tutor(s), E-mail	arunnair@nitt.edu sram@nitt.edu	Telephone No.	9944640789 7845120015
Course Type	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> Elective course		

COURSE OVERVIEW

The course provides the students with an insight into the measurement of discharge of fluid (water) through various notches, bends, elbow and thus enables them to have a comparative study based on the losses, frictional effects and so on. In addition to this, students are also being introduced to the hydraulic machines like pumps and turbines which is useful in understanding the efficiency of the machines with respect to the concerned applications.

COURSE OBJECTIVE

1. To provide practice in estimating fluid friction losses.
2. To impart training to use various flow measuring devices which facilitates in engineering design and calculations.
3. To learn the working principles of hydraulic turbines and pumps.

<u>COURSE OUTCOMES (CO)</u>			
Upon the completion of the course, the students will be able to:			Aligned Programme Outcomes (PO)
1.	estimate the friction and measure the frictional losses in fluid flow		1,2,3,4,7,8,10
2.	experiment with flow measurement devices like venturimeter and orificemeter.		1,2,3,5
3.	predict the coefficient of discharge for flow through pipes		1,2,3,7,9
4.	perform test on turbines and pumps.		1,2,3,7,9
<u>COURSE TEACHING AND LEARNING ACTIVITIES</u>			
S.No.	Week	Topic	Mode of Delivery
1	1 st week	Introduction to experiments	Oral
2	2 nd week	Determination of discharge coefficient of Venturi- meter	Demonstration
3	3 rd week	Determination of discharge coefficient of orifice meter.	Demonstration
4	4 th week	Determination of discharge coefficients for V-notch	Demonstration
5	5 th week	Determination of discharge coefficients for rectangular notch	Demonstration
6	6 th week	Determination of pipe friction.	Demonstration
7	7 th week	Determination of minor loses in pipes.	Demonstration
8	8 th week	Performance characteristics of reciprocating pump	Demonstration
9	9 th week	Performance characteristics of gear oil pump	Demonstration
10	10 th week	Performance characteristics of jet pump	Demonstration

11	11 th week	Characteristics test on Francis wheel turbine	Demonstration
12	14 th week	Semester Lab Exam	Demonstration

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage (marks)
1.	Weekly Assessment in lab	Every week	Two lab session	40
5	End semester lab Examination	April second week	120 Minutes	60
			Total	100

COURSE EXIT SURVEY

1. Feedback from the students during class committee meeting.
2. End semester feedback on Course Outcomes.

COURSE POLICY (Attendance, Assessment, academic honesty, etc.)

CORRESPONDENCE

1. All the correspondence (schedule of classes/schedule of assessment/ course material/ any other information regarding this course) will be done through their class representative.

ATTENDANCE

1. Attendance will be taken by the faculty in all contact hours.
2. Any student, who fails to maintain 75 % attendance need to appear for the compensation assessment (CPA). Student who scores more than 60 % marks in the CPA along with assessment criteria will be eligible for attending the end semester examination.

3. Students not having 75 % minimum attendance at the end of the semester and also fail in CPA (scoring less than 60 %) will have to REDO the course.

ACADEMIC HONESTY & PLAGIARISM

1. All the students are expected to be genuine during the course work. Taking of information by means of copying assignments, looking or attempting to look at another student's paper or bringing and using study material in any form for copying during any assessments is considered dishonest.
2. Preventing or hampering other students from pursuing their academic activities is also considered as academic dishonesty.

ADDITIONAL COURSE INFORMATION

FOR SENATE'S CONSIDERATION

S. Ramar   
Course Faculty _____ CC-Chairperson _____ HOD _____

S. Ramar

Head
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