

COURSE TITLE : FLUID MECHANICS LABORATORY
COURSE CODE : 3029
COURSE CATEGORY : B
PERIODS/ WEEK : 3
PERIODS/ SEMESTER : 45
CREDIT : 2

TIME SCHEDULE

MODULE	TOPIC	PERIODS
1	Pipe friction apparatus. venturimeter, rotameter and water meter	11
2	Orifice apparatus metacentric height.	12
3	Notch apparatus. Bernoullis theorem	11
4	Pipe fittings. Pipe joints and valves. Minor losses in pipes	11
TOTAL		45

Course Distribution:

Module	Name of Module	Course Outcome no.	Total periods per semester		
			Instructional	Test	Total
1	Pipe friction apparatus. venturimeter, rotameter and water meter	1 5	Theory : Practical :11		11
2	Orifice apparatus metacentric height.	2 6	Theory : Practical :11	1	12
3	Notch apparatus. Bernoullis theorem	3 4	Theory : Practical :11		11
4	Pipe fittings. Pipe joints and valves. Minor losses in pipes	7 8	Theory : Practical :10	1	11
Total periods per semester					45

Remarks based on feedback from students, faculty, industry (revision 2010):

COURSE OUTCOME :

SL.NO.	SUB	STUDENT WILL BE ABLE TO
1	1	Understand the pipe friction apparatus.
	2	Understand the Orifice apparatus
	3	Appreciate the Notch apparatus (Rectangular, triangular & trapezoidal)
	4	Appreciate the Bernoulli's theorem
	5	Appreciate the venturimeter, rotameter and water meter.
	6	Comprehend the metacentric height.
	7	Understand the pipe fittings, pipe joints and valves.
	8	Understand the minor losses in pipes.

CONTENT DETAILS**MODULE I**

Understand the pipe friction apparatus
 Use the pipe friction apparatus to determine the Darcy's constant
 Explain the term coefficient of friction in pipes
 State the effect of friction in pipes
 Determine the coefficient of friction of pipes of different diameters
 Plot total energy line and hydraulics gradient line
 Comments on the graph.
 Appreciate the venturimeter, rotameter and water meter
 Appreciate the coefficient of discharge through venturimeter
 State the functions and applications of a venturimeter
 Determine the coefficient of discharge
 Plot the graph, discharge Vs head
 Comments on curve.

MODULE II

Understand the Orifice apparatus
 Appreciate the coefficient of discharge through orifices
 Demonstrate the circular orifices and its functions
 Determine the coefficient of discharge
 Plot the graph, coefficient of discharge Vs discharge
 Comments on graph.
 Comprehend the metacentric height.
 Use the metacentric apparatus to determine the meta centric height

MODULE III

Appreciate the Notch apparatus (Rectangular, triangular & trapezoidal)
 Demonstrate different types of Notches
 Determine the coefficient of discharge of Rectangular Notch
 Determine the coefficient of discharge of Triangular Notch

Determine the coefficient of discharge of Trapezoidal Notch
Plot the graph, coefficient of discharge Vs discharge.

Appreciate the Bernoulli's theorem
Demonstrate the use of Bernoulli's theorem apparatus
Explain Bernoulli's theorem
Verify Bernoulli's theorem using the apparatus
Draw the graph, total energy Vs Length of pipe
Interpret the curve.

MODULE IV

Understand the pipe fittings, pipe joints and valves
Identify the various types of pipe fittings, joints and valves
Understand the minor losses in pipes
Estimate the minor losses in flow through pipes

TEXT BOOKS

1. Mechanical Workshop & Laboratory Manual By K. C. John