



JIS COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

Fluid Mechanics & Hydraulic Machines Laboratory

Details of Laboratory:

Lab in-charge: Mr. Dhiraj Mondal

Fluid Mechanics & Hydraulic Machines Laboratory is a well equipped laboratory which provides ideas on hydraulic turbine and carry out their performance study useful hydel power plants. Examine and understand pump working characteristics under given constraints . Estimate frictional forces applicable in a flow channel to determine major and minor losses. This laboratory is scheduled for 4th semester Mechanical engineering students & 5th semester Civil engineering students. Apart from curriculum, some additional experimental setups are there which helps the students to enhance their knowledge. Students also get opportunity to implement their ideas through various application oriented micro projects.

Major Equipments.

- 1 Centrifugal Pump
- 2 Notch Apparatus(V-notch)
- 3 Pipe Friction Apparatus
- 4 Venturimeter
5. Reynold Apparatus
6. Bernoulli's Apparatus
7. Notch Apparatus(rectangular-notch)
8. Francis Turbine
9. Pelton Turbine
10. Orificemeter

List of Experiments.

Sl.	Description
1.	To determine the efficiency of centrifugal pump.
2.	To determine the co efficient of discharge of v-notch.
3.	To determine the co efficient of discharge of rectangular notch.
4.	To determine the coefficient of friction in the pipe flow of various diameter.
5.	To determine the co efficient of discharge of venturimeter.
6.	To determine the co efficient of discharge of orificemeter.
7.	To determine the fluid flow analogy using Reynolds apparatus.
8.	To verify Bernoulli's Theorem.
9.	To determine the efficiency of Francis Turbine.
10.	To determine the efficiency of Pelton Turbine.

Lab Occupancy

JIS College of Engineering
Lecture and Lab schedule for even semester 2017-2018 STREAM/BATCH: ME- 2A
B.Tech 2nd Year classes Room No. 317

B-TECH 2 nd Year Classes - Room No. 517								
DAYS	10 am to 11 am	11 am to 12 am	12 pm to 1pm	1 to 2pm	2 to 3pm	3 to 4 pm	4 to 5 pm	5 to 6 pm
MON				B R E A K		ME 491,Gr.ME2A(2)[DM+ SS]		
TUE								
WED						ME 491,Gr.ME2A(1)[DM+ SM]		
THU								
FRI								

Subjects: ME 401- Fluid Machinery, ME 402- Primary Manufacturing Process, ME 403- Engineering Materials, ME 404- Mechanisms ,M(ME)401- Numerical Methods, HU 401- Environmental Science, ME 491- Fluid Mechanics & Hydraulic Machines Lab, ME 492- Manufacturing Technology Lab, ME 493- Material Testing Lab, ME 494- Machine Drawing-II, M(ME) 491- Numerical Methods Lab HU481- Technical Report Writing & Language Practice

Faculty name: SG-Dr. Sandip Ghosh,AM-Mr.Abhishek Mondal, MRI- Mr. Munshi Rasidul Islam,SM-Mr. Subrata Majumder DS-Mr.Dipak Shaw, DM-Debashis Majumder,PR-Partha Roy,SSR-Subhomay Singha Roy, TP- Mrs.Thia Paul, DM1-Mr.Dhiraj Mondal, AG-Mrs.Adrija Guha

Routine Coordinator
(Prof. P. Biswas)

HOD
(Prof. (Dr.) S. Ghosh)

Principal
(Prof. (Dr.) M. R. Dave)

JIS College of Engineering
Lecture and Lab schedule for even semester 2017-2018 STREAM/BATCH: ME-2B
B.Tech- 2nd Year classes - Room No. 419

DAYS	10 am to 11 am	11 am to 12 am	12 pm to 1pm	1 to 2pm	2 to 3pm	3 to 4 pm	4 to 5 pm	5 to 6 pm
MON				B R E A K				
TUE						ME 491,Gr.ME2B(2)[DS+SS]		
WED								
THU								
FRI						ME 491,Gr.ME2B(1)[DS+SM]		

Subjects: ME 401- Fluid Machinery, ME 402- Primary Manufacturing Process, ME 403- Engineering Materials, ME 404- Mechanisms ,M(ME)401- Numerical Methods, HU 401- Environmental Science, ME 491- Fluid Mechanics & Hydraulic Machines Lab, ME 492- Manufacturing Technology Lab, ME 493- Material Testing Lab, ME 494- Machine Drawing-II, M(ME) 491- Numerical Methods Lab HU 481- Technical Report Writing & Language Practice

Faculty name: SG-Dr. Sandip Ghosh,PB-Mr.Palash Biswas,AP-Mr.Arijit Patra, TP-Mrs.Thia Paul, MRI- Mr. Munshi Rasidul Islam, DS- Mr. Dipak Shaw DM-Debashis Majumder, PR-Partha Roy,SSR-Subhomay Singha Roy,TS-Mr.Tanmoy Sarkar, TP- Mrs.Thia Paul, DM1-Mr.Dhiraj Mondal, Mrs.Adrija Guha

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Name of the Course: Fluid mechanics & Hydraulic Machines Lab

Course Code: ME 491

Prerequisite: Knowledge of hydraulic machines

Course Objective: To expose students for operating hydraulic machines by themselves and measure their performance.

Course Outcomes:

Upon successful completion of this course, the student will be able to:

ME491.1. Recall the coefficient of discharge for several flow measuring devices to explore the reasons of differences in theoretical calculation and practical measurements.

ME491.2. Demonstrate hydraulic turbine and carry out their performance study useful hydel power plants.

ME491.3. Examine and understand pump working characteristics under given constraints.

ME491.4. Estimate frictional forces applicable in a flow channel to determine major and minor losses.

Course Articulation Matrix:

CO Codes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2	PSO 3
ME491 .1	2	-	1	-	-	-	-	-	2	1	-	-	-	1	-
ME491 .2	2	-	3	-	-		1	-	2	1	1	-	2	1	1
ME491 .3	2	-	1	-	-	1		-	2	1	1	-	2	-	-
ME491 .4	2	-	1	1	-	-	-	-	2	1	1	-	-	1	-
Avg.	2	-	1.25	1		1	1		2	1	1	-	1	1	1

Apparatus Details.



Notch Apparatus(V-notch and Rectangular notch)



Venturimeter & Orificemeter Test Rig



Bernoulli's Apparatus



Pipe Friction Apparatus



Pelton Turbine



Francis Turbine



Centrifugal Pump



Renolds Apparatus