

FLUID MECHANICS HYDRAULIC MACHINES LAB

| | | | | | |
|--|-------------------|---------------------------------|-------|----------------------|-----|
| Course Code | 20ME3351 | Year | II | Semester | I |
| Course Category: | Professional Core | Branch: | ME | Course Type | Lab |
| Credits: | 1.5 | L-T-P: | 0-0-3 | Prerequisites | NIL |
| Continuous Internal Evaluation: | 15 | Semester End Evaluation: | 35 | Total Marks: | 50 |

| | | | | | | | | | | | | | | |
|--|---|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------------------|-------------------|------|
| Course Outcomes | | | | | | | | | | | | | | |
| Upon successful completion of the course, the student will be able to | | | | | | | | | | | | | | |
| CO | Statement | | | | | | | | | | | BTL | Experiment | |
| CO1 | Apply the knowledge to estimate losses in pipes and coefficient discharge of various flow measuring devices | | | | | | | | | | | L3 | 1,2,3,4,5 | |
| CO2 | Apply the knowledge to estimate the coefficient of the impact of jet on vanes. | | | | | | | | | | | L3 | 6 | |
| CO3 | Analyze Bernoulli's theorem. | | | | | | | | | | | L4 | 7 | |
| CO4 | Evaluate the performance of pumps and turbines. | | | | | | | | | | | L5 | 8,9,10,11,12 | |
| Contribution of Course Outcomes towards achievement of Program Outcomes | | | | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
| CO1 | 3 | 3 | | | | | | | | | | | 3 | 3 |
| CO2 | 3 | 3 | | | | | | | | | | | 3 | 3 |
| CO3 | 3 | 3 | | | | | | | | | | | 3 | 3 |
| CO4 | 3 | 3 | | | | | | | | | | | 3 | 3 |
| Course Content | | | | | | | | | | | | | | |
| Expt No | Contents | | | | | | | | | | | Mapped CO | | |
| Experiment-1 | Determination of loss of head due to the sudden contraction in a pipeline. | | | | | | | | | | | CO1 | | |
| Experiment-2 | Determination of friction factor for a given pipeline. | | | | | | | | | | | CO1 | | |
| Experiment-3 | Determination of coefficient of discharge of Triangular Notch | | | | | | | | | | | CO1 | | |
| Experiment-4 | Determination of coefficient of discharge of Venturimeter. | | | | | | | | | | | CO1 | | |
| Experiment-5 | Determination of coefficient of discharge of Orifice meter. | | | | | | | | | | | CO1 | | |
| Experiment-6 | Determination of coefficient of Impact of jets on Stationary Vanes. | | | | | | | | | | | CO2 | | |
| Experiment-7 | Verification of Bernoulli's equation. | | | | | | | | | | | CO3 | | |
| Experiment-8 | Performance Test on Single Stage Centrifugal Pump. | | | | | | | | | | | CO4 | | |
| Experiment-9 | Performance Test on Multi Stage Centrifugal Pump. | | | | | | | | | | | CO4 | | |
| Experiment-10 | Performance Test on Pelton Wheel. | | | | | | | | | | | CO4 | | |
| Experiment-11 | Performance Test on Kaplan Turbine. | | | | | | | | | | | CO4 | | |
| Experiment-12 | Performance Test on Francis Turbine. | | | | | | | | | | | CO4 | | |
| Learning Resources | | | | | | | | | | | | | | |
| Text books: | 1.K.L.Kumar."Engineering Fluid Mechanics" Experiments, Eurasia Publishing House, 1997 2.Jagdish Lal, Hydraulic Machines, Metropolitan Book Co, Delhi, 1995 | | | | | | | | | | | | | |

| | |
|------------------------|--|
| Reference books | <ol style="list-style-type: none">1. Hydraulics and Fluid Mechanics, by P.N. Modi and S.M. Seth, Standard book house, 2000, New Delhi.2. Fluid Mechanics and Hydraulic Machines, by Sukumar Pati, Mc Graw Hill Education Private Limited, 2014, New Delhi.3. Hydraulics and Fluid Mechanics and fluid machines, by S Ramamrutham, Dhanapat rai publishing company, New Delhi |
|------------------------|--|