

**MARTHANDAM COLLEGE OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF CIVIL ENGINEERING**

**HYDRAULIC ENGINEERING LABORATORY**

Major Equipment's Available in the Lab

Sl. No	Name of the Equipment's	Specification	Quantity
1	Submersible Pump setup	1.Measuring Area: 05x0.5 M <sup>2</sup> 2. H: Efficiency of Motor 0.5 3. Energy Meter Constant: 1200 Rev/Kw. Hr 4. Speed: 2800 Rpm 5. Pump Size: 40mm	1
2	Pelton wheel turbine setup	1.Rate Supply Head: 25-35 Meters, 2.Discharge: 500 Lpm, 3. Normal Speed: 1000 Rpm, 4.Power Output: 1 Kw, 5. Jet Diameter: 21mm (Maximum), 6. Pitch Circle Diameter: 260mm, 7. Jet Ratio: 12 Approximate	1
3	Single Speed Centrifugal Pump Setup	1.Power: 1 Hp, Single Phase, 2880 Rpm 2. Energy Meter Constant N: 1200 Rev/Kw. Hr 3. Datum Head Z: 0.6 M 4. Supply Voltage: 400 Volts 5. Area of Measuring Tank: 0.5x0.5 M <sup>2</sup> 6. Motor Efficiency: 0.8	1
4	Francis turbine setup	1.Rate Supply Head: 8 Meters, 2.Discharge: 1000 Lpm, 3. Normal Speed: 250 Rpm, 3.Power Output: 1 Kw, 5.Run Away Speed: 1750 Rpm, 6.Runner Diameter: 160mm, 7.No of Guide Vanes: 10, 8.P.C.D Guide Vanes: 230mm, 9. Brake Drum Diameter:300mm, 10.Rope Brake Diameter: 15mm	1

**COURSES OFFERED**

Sl. No	Odd Sem (Course code & Name)	Class	Even Sem (Course code & Name)	Class
1	-	-	CE3411- Hydraulic Engineering Laboratory	II CIVIL

**CE3411-HYDRAULIC ENGINEERING LABORATORY**

**OBJECTIVES**

- Students should understand the measurement of flow in pipes
- Students should understand the losses in pipe flow
- Students should understand the characteristics of pumps
- Students should understand the characteristics of turbines.
- Students should understand the metacentric height.

**OUTCOME**

- The students will be able to measure flow in pipes
- The students will be able to determine losses in pipe flow
- The students will be able to develop characteristics of pumps
- The students will be able to develop characteristics of turbines.
- The students will be able to determine metacentric height

**LIST OF EXPERIMENTS**

1. To Determine the Calibration of Rotameter
2. To Determine the Calibration of Venturi meter / Orifice meter
3. Determination of Bernoulli's Experiment
4. Determination of friction factor in pipes
5. Determination of minor losses
6. To Determine the Characteristics of Centrifugal pumps
7. To Determine the Characteristics of Gear pump
8. To Determine the Characteristics of Submersible pump
9. To Determine the Characteristics of Reciprocating pump
10. To Determine the Characteristics of Pelton wheel turbine
11. To Determine the Characteristics of Francis turbine
12. Determination of Metacentric height of floating bodies