



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal - 500 043, Hyderabad, Telangana

DEPARTMENT OF CIVIL ENGINEERING

Laboratory Equipment - Fluid Mechanics and Hydraulics Machines Laboratory

This course will focus on the behaviour of fluid under various conditions, providing hands-on experience in the fluid mechanics laboratory to explore principles such as flow dynamics, viscosity, and turbulence. The course delves into the intricacies of fluid dynamics, offering a comprehensive study of hydraulic systems, theoretical principles and practical applications.

- 1. Equipment Setup:** Equipment setup involves arranging and configuring hardware and software components to function efficiently and effectively for a specific purpose or task. This includes assembling physical devices, connecting cables, installing drivers and software, configuring settings, and ensuring compatibility and proper functioning of all components.
- 2. Facility Infrastructure:** The facility infrastructure in a hydraulic and hydraulic machinery lab encompasses vital equipment like pumps, actuators, valves, and test benches, coupled with safety measures, workspace layout, utilities, and ventilation systems. It facilitates hands-on learning and research in hydraulic systems and machinery, ensuring compliance with safety standards while enabling the study of hydraulic principles and applications.
- 3. Equipment Accuracy Assurance:**
 - ❖ Hydraulic pumps, actuators, valves, and Cylinders.
 - ❖ Pressure gauges, flow meters, and sensors for measurement and control.
 - ❖ Implementation of quality control measures to minimize errors and ensure accurate results.

Laboratory Equipment:

S.No	Item	Make	Quantity	Cost per Unit (Rs.)	Total Cost (Rs.)
1	Venturi meter Apparatus	Consolidated Equipment Services	1	23,814	23,814
2	Friction through a Pipe Apparatus	Consolidated Equipment Services	1	22,113	22,113
3	Bernoulli's Apparatus	Consolidated Equipment Services	1	18,711	18,711
4	Impacts of jet on vanes	Consolidated Equipment Services	1	24,570	24,570
5	Pelton Wheel Test Rig	Consolidated Equipment Services	1	1,26,000	1,26,000
6	Francis Turbine Test Rig	Consolidated Equipment Services	1	1,19,385	1,19,385

S.No	Item	Make	Quantity	Cost per Unit (Rs.)	Total Cost (Rs.)
7	Kaplan Turbine Test Rig	Consolidated Equipment Services	1	1,36,500	1,36,500
8	Single-stage centrifugal pump	Consolidated Equipment Services	1	28,917	28,917
9	Multi-stage centrifugal pump	Consolidated Equipment Services	1	28,917	28,917
10	Reciprocating Pump Test Rig	Consolidated Equipment Services	1	22,113	22,113
11	Flow through wires and Notches	Mechtrix Engineers	2	32,130	32,130
12	Flow through external mouthpieces	Mechtrix Engineers Equipment Services	3	55,945	55,945

HOD