

Fluid Mechanics Laboratory

Course Code: 28703
Credits: 1
Course Type: Practical
Prerequisites: -
Corequisite: Fluid mechanics II
Course Length: 34 Hours

Outline:

1. Performing and analyzing complete experiments

- Centrifugal pumps
Familiarity with centrifugal pumps and obtaining the characteristic curve of the pumps in different rotational speed
- Friction in pipes
Investigation of pressure drop in pipes, determination of drop coefficient of different connections and measurement of flow rate with different devices
- Fans
Familiarity with centrifugal fans, obtaining the main parameters and obtaining the appropriate approach for fan selection
- Pelton and Francis turbines
Familiarity with different types of water turbines and determining their efficiency

2. Reviewing and analyzing observational experiments

- Observation of Bernoulli equation
A practical study of the Bernoulli equation and its generalization
- Jet impulse
Investigation of the force applied by water jet to static obstacles and its comparison with the law of motion
- Cavitation
Investigation of cavitation phenomenon in venturi duct
- Water hammer



Investigation of water hammer phenomenon for incompressible fluid inside the pipe

- Rotation

Investigation of the rotational and irrotational flow

- Stream lines

Investigation of flow lines using oil vapor around an airfoil

- Wind tunnel

Familiarity with wind tunnel, its function and comparison of drag coefficient of different objects in wind tunnel