

Course Code	Course Name	Credits
MEL602	Turbo Machinery	01

Objectives

1. To familiarize with boilers, boiler mountings and accessories using models/cut sections.
2. To familiarize with hydraulic energy conversion devices.
3. To familiarize with thermal energy conversion devices.

Outcomes: Learner will be able to...

1. Differentiate boiler, boiler mountings and accessories
2. Conduct a trial on reciprocating compressor / centrifugal compressor.
3. Conduct a trial on impulse turbine and analyze its performance
4. Conduct a trial on reaction turbine and analyze its performance
5. Conduct a trial on Centrifugal pump and analyze its performance
6. Conduct a trial on Reciprocating pump and analyze its performance
7. Conduct a trial on gear pump

List of Experiments

Group-A (conduct any 7 including S.N.10)

1. Demonstration / e-learning of Boiler, Boiler mountings and accessories
2. Impact of jet
3. Trial on Impulse turbine (Pelton Wheel Turbine)
4. Trial on Reaction turbine (Francis Turbine)
5. Trial on Reaction turbine (Kaplan Turbine)
6. Trial on centrifugal pump (Single stage/Multistage)
7. Trial on reciprocating pump.
8. Trial on reciprocating / centrifugal air compressor
9. Trial on gear pump
10. Industrial visit to a power plant (compulsory)

Group –B (conduct any 3)

1. Measurement of Hydrostatic Pressures
2. Verification of Archimedes' Principle
3. Calibration of Venturimeter/ Orifice meter/Nozzle/ Pitot tube
4. Determination the friction factor in Pipes
5. Determination of major and minor losses in Pipe systems
6. Verification of Bernoulli's Equation
7. Calculation of Lift and Drag over an aerofoil

Assessment:**Term Work**

Term work shall consist of all the experiments from the list, 3 assignments containing numerical based on Centrifugal Pump, Reciprocating Pump and centrifugal compressor and a visit report.

The distribution of marks for term work shall be as follows:

- Laboratory work (Experiments): 10 marks
- Assignments: 05 marks
- Visit report: 05 Marks
- Attendance: 05 marks

Virtual Labs

<http://fm-nitk.vlabs.ac.in/#> - Fluid Mechanics Lab, NITK Surathkal

<https://fmc-nitk.vlabs.ac.in/fluid-machinery/> - Fluid Machinery Lab, NITK Surathkal