
DEPARTMENTAL LABORATORIES

1. THERMAL ENGINEERING LAB:

Students are introduced to industrial Thermal Equipments such as Boiler, Steam Turbine, Gas Turbine and Condensers. Students learn the basic working principles of the Thermal Engineering equipments.



List of Equipments:

- Bomb Calorimeter
 - Models of
 - Gas Turbine
 - Steam Engine
 - Steam Plant
 - Green Economizer
 - Float Steam Strap
 - All types of Boilers
 - Boiler accessories & mountings
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2. REFRIGERATION AND AIR-CONDITIONING LAB.:

In this laboratory students become familiar to different systems, processes and components used in Refrigeration and Air-conditioning.



List of Equipments:

- Refrigeration Test Rig
 - Air Conditioning Test Rig
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3. MECHANICAL MEASUREMENT LAB.:

Students are introduced to different measuring instruments, their construction, working, and process of measurement of different mechanical quantities and parameters.



List of Equipments:

- Profile projector
- Surface roughness tester
- Tool makers microscope
- Gauge block set
- Floating Carriage Micrometer
- Strain gauge
- Accelerometer for velocity
- Load cell trainer
- Anemometer
- Resistance Temperature detector
- Micrometer & dial Indicators
- Potentiometer
- L.V.D.T.
- Digital flow indicator
- Spirit level

4. MECHATRONICS LAB.:

This lab is utilized to understand the concepts of industrial automation, logical circuits of Hydraulics and pneumatics, also the different control systems.



List of Equipments

- Advance Hydraulic Trainer
 - PLC Analog & Digital
 - Ladder Software
 - Basic Electro Pneumatic Trainer
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5. FLUID MECHANICS LAB. :

Fluid Mechanics laboratory deals with the basic concept and principles in hydrostatics, hydrokinematics and hydrodynamics with their applications in fluid flow problems.



List of Equipments:

- Metacentric Height of a Ship Model
 - Apparatus
 - Hydraulic Bench
 - Venturimeter & Orifice Meter
 - Apparatus
 - Pipe Friction Apparatus
 - Bernoulli's Theorem Apparatus
 - Reynolds's Apparatus
 - Impact of Jet Apparatus
 - Losses in Pipe Apparatus
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6. HYDRAULIC MACHINERY LAB. :

Students become familiar with power generation from hydrology equipments such as Pelton wheel turbine, Kaplan Turbine and Francis turbine.



List of Equipments:

- Centrifugal Pump Test Rig Variable Speed (Close)
 - Reciprocating Pump Test Rig
 - Variable Speed(close)
 - Francis Turbine Test Rig
 - Pelton Wheel Turbine test Rig
 - Kaplan Turbine Test Rig
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7. I.C. ENGINE & AUTOMOBILE LAB. :

This Lab is useful to calculate the different power of I.C. Engine and to analysis the different efficiency and power with computer based test Rig.

In this lab we study construction and working of different parts of automobiles and their operations.



List of Equipments:

- Computerized C.I. Engine Test Rig
 - Smoke Meter
 - Multi-gas Analyzer
 - Exhaust Gas Calorimeter
 - Petrol engine Test Rig
 - Section Models of C.I. & S.I. Engine
 - Single & Double Shoe Brake Models
 - Hydraulic Break Model
 - Complete Chassis Demo Model
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8. HEAT AND MASS TRANSFER LAB.:

In this laboratory students become familiar with different modes of heat transfer, thermal conductivity of materials, working different heat exchangers.



List of Equipments:

- Stefan Boltzmann Apparatus
 - Vertical & Horizontal Condenser
 - Unsteady State Heat Transfer Unit
 - Apparatus to Measure Thermal
 - Conductivity of Metal Rod
 - Apparatus to Measure Heat Transfer
 - Through Composite Wall
 - Through Lagged Pipe
 - Through Pin-Fin Model
 - In Forced Convection
 - In natural convection
 - Parallel Flow/Counter Flow Heat Exchanger
 - Shell & Tube Heat Exchanger
 - Plate Type Heat Exchanger
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9. CADD LAB-01 LAB. :

Students Create 2-Dimensional and 3-Dimensional Models using CAD software- Inventor Professional-2009 with manufacturing considerations.

Students gain knowledge of conventional representation of various machining and mechanical details as per Indian Standards (IS).



- COMPUTERS P-4 IBM- 10.
 - COMPUTERS P-4 LENOVA- 08.
 - COMPUTERS P-4 WIPRO- 02.
 - Autodesk Inventor
 - Professional 2009 software
 - Plotter HP-Design Jet 500 mono
 - Dot Matrix Printer
 - EPSON LQ-1150II
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10. CADD LAB.-02:

This lab is utilized for 3-Dimensional Modeling such as Wire Frame Modeling, Solid Modeling, Surface Modeling, Parametric Modeling, etc with the help of CATIA V5R19 Software.

Structural, thermal and fluid flow analysis is done by ANSYS V12.1 Software.



- COMPUTERS - P4 - HP
 - Desktop & TFT 15" LCD monitor - 20
 - CATIA V5-R19 License - 20
 - ANSYS Software - 25
 - 12.1 Version
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11. STRENGTH OF MATERIAL LAB. :

Students become familiar with material testing such as tension, compression, shear, hardness testing, torsion testing & its importance in industrial applications.



List of Equipments:

- Universal Testing Machine
 - Electronic Extensometer
 - Torsion Testing Machine
 - Fatigue Testing Machine
 - Impact Testing Machine (Izode & Charpy)
 - Hardness Testing Machine
 - Wire Rope Testing Machine
 - Double Shear Test Apparatus
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12. MATERIAL TECHNOLOGY LAB. :

In this laboratory students are studies the metallurgical microscope, Microstructures, Fatigue tests, tempering characteristics materials.



List of Equipments :

- Trinocular Metallurgical Microscope with Image Analyzer
 - Double Disc Polishing Machine
 - Abrasive Belt Grinder - Dry Type
 - Jominy End Quench Hardness Test Apparatus
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13.ENGINEERING MECHANICS LAB. :

In this lab the students studying the basic principle of mechanical engineering through different equipments.



List of Equipment:

- UNIVERSAL FORCE APPARATUS
- LINK POLYGON APPARATUS
- PARRALLEOGRAM OF FORCE
- APPARATUS POLYGON OF FORCES
- APPARAUTS BELL CRANK LEVER
- INVERTED ROOF TRUSS ON WHEEL SHEAR LEG APPARATUS
- SIMPLE JIB CRANE
- FRICTION SLIDE APPARATUS WITH INCLINED PLANE
- PARALLEL FORCE APPARATUS
- DIAL TYPE MOMENT OF INERTIA FLYWHEEL 25 cm DIA.

14.THEORY OF MACHINE LAB. :

The instruments of this lab are used to find a jumping speed of follower, critical speed of shaft, gyroscopic couple and its effects.



List of Equipment

- Slip & Creep Measurement
 - Vibration Equipment,
 - Epicyclic Gear Train
 - Coriolis Component Of Acceleration
 - Whirling of Shaft Apparatus
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15.MECHANICAL VIBRATIONS LAB.:

The instruments of this lab are used to determine modal parameters such as natural frequency, mode shape and damping factor.



- VIBRATION LAB EQUIPMENT
- WHIRLING OF SHAFT APPARATUS
- SLIP & CREEP MEASUREMENT