

Advance Laboratories & workshop

WORKSHOP

Mechanical Engineering Workshop is a place where students acquire knowledge on the operation of various processes involved in manufacturing and production. The Workshop Practice course makes students competent in handling practical work in engineering environment. Mechanical Engineering Workshop is also involved in different maintenance/repair works for University

MACHINE SHOP Machine shop is a place in which metal parts are cut to the required size and put together to form mechanical units or machines. The machines so made are to be used directly or indirectly in the production of necessities and luxuries of civilization. Machine shop is the base of all mechanical production.

FORGING SHOP The Mechanical working of the metal is the shaping of the metal in either cold state or hot state. This does not include machining, grinding or casting. But in Mechanical working of the metal, the metal is shaped by “pressure” actually, in which forging, bending, twisting, drawing etc are done bring it to its final shape. In these processes some metals are shaped in both cold and hot worked.

FITTING SHOP Fitting shop is a place where fitting or assembling work is carried out. Some repair / maintenance and Die punch work is also carried out in Fitting shop.

FOUNDRY SHOP Foundry is one of the manufacturing process by which a desired shape of metal is obtained by heating up to its molten state (liquid state), and pouring into mould cavity. After some time metal is allowed to cool and solidify. The solidified piece of metal is known as casting.

WELDING SHOP It is the process of permanent fastening where two metals are fused at the temperature of 3200°C (when metals are melted). The most common types of welding are: 1. Electric Arc Welding 2. Gas Welding (Oxy Acetylene Welding) 3. Resistance Welding 4. Forge or Fire Welding

Fluid Mechanics and Fluid Machinery Lab Equipment

Fluid Mechanics and Machinery lab equipped with the Pelton turbine, Francis turbine, Kaplan turbine, double acting reciprocating pump, submergible pump, mono block pump, and piston pump. The objective of this laboratory is to study the operating characteristics of hydraulic machines and flow devices. The laboratory is important for Mechanical Engineering, Civil Engineering and Electrical Engineering students. The major equipment focuses on the study and calibration of gauges, triangular notch, rectangular notch, Orifice meter Venturimeter and determination of Chezy's constant and Darcy's coefficient. In addition the performance test on

hydraulic machines like centrifugal pump, Reciprocating pump, Petrol Wheel, Francis turbine and Kaplan turbine are also conducted. Experiments also include the study of stability of floating body, hydraulic ram and experimental determination of frictional head losses in pipes. All the experimental set up are available as self contained units.

Manufacturing Technology Lab

This laboratory is aimed at providing an introduction to the Know-how of common processes used in industries for manufacturing parts by removal of material in a controlled manner. Auxiliary methods for machining to desired accuracy and quality will also be covered. The emphasis throughout the laboratory course will be on understanding the basic features of the processes rather than details of constructions of machine, or common practices in manufacturing or acquiring skill in the operation of machines. Evidently, acquaintance with the machine is desirable and the laboratory sessions will provide adequate opportunity for this. Manufacturing technology lab - II enhances students to study and practice the various machining operations that can be performed in lathe, shaping, drilling, milling etc. and equip students with the practical knowledge required in the manufacturing/production companies. This lab helps students to study and practice the basic machining operations in the special purpose machines and acquire its applicability in the real time components manufacturing industries.

STRENGTH OF MATERIALS LABORATORY

Selection of Materials for a particular application is a difficult task, to select a proper material for a particular application it is must to know about the material characteristics. Mechanical properties such as tensile, compressive, impact, shear, strengths, Hardness etc., are the primary properties for design of any device. As a Mechanical engineer, this is must to know how to measure and analyze the above properties by using various testing instruments. To supplement the theoretical knowledge gained in Mechanics of Solids with practical testing for determining the strength of materials under externally applied loads. This would enable the student to have a clear understanding of the design for strength and stiffness.

Dynamics Laboratory

The study of dynamics is a key component of every undergraduate engineering course, but is especially relevant to Aerospace Engineering. We will do experiments, designs, and hands-on homework that are intended to help students develop an intuition or feel for dynamics. Furthermore, we take the study of simple motions one step further by introducing the fundamental concepts of vibrations and control in this introductory course. Vibration analysis is critical to aerospace vehicle design, and as engineers we are not content to understand the motion of vehicles, but rather we often seek to modify it to suit mission requirements. This course will give you a flavour of these advanced topics, laying the groundwork for more advanced studies to be carried out in higher education. Dynamics lab helps to study the behaviors of various machines, equipments and structures in real system due to the kinematic and dynamic forces acting on a body. The experiments help students to understand and engineer real-time mechanical engineering problems like mass balancing, machine vibration and noise, speed control etc.,

Thermal Laboratory

Internal Combustion engines are the heart of an Automobile application. So, the study of IC engines is necessary for a Mechanical engineer. Thermal Engineering Laboratory-I trains the students with principles and operation of various Internal Combustion Engines used in Automobiles and steam generators and turbines for power generation application. Analysis of Internal Combustion Engines by doing various testing to define the specifications. Study and analysis of various liquid fuels properties for using as a fuel in Internal Combustion Engines. Most of the Power Generation is happening through the following devices called Steam generators and Steam Turbine. Study and analysis of various testing of steam turbine and steam generators are performed by students in thermal lab.

Metrology And Measurement Laboratory

"You can't manage what you don't measure", Metrology Laboratory goes with this saying.

The laboratory is to equip students with knowledge on common linear and angular measuring instruments meant engineering measurements. In science and engineering, objects of interest have

to be characterized by measurement and testing. Measurement is the process of experimentally obtaining quantity values that can reasonably be attributed to a property of a body or substance. Metrology is the science of measurement. Testing is the technical procedure consisting of the determination of characteristics of a given object or process, in accordance with a specified method. Doing this the students get familiar with the measurement of various types of dimensions.