

INFRASTRUCTURE

Engineering Laboratories and workshops provide students with hands-on experiences in engineering design activities for mechanical engineering. The laboratory experiences provide opportunity to students to explore and learn core engineering practices and prepare for industrial environment. AIEM has established labs and workshops for mechanical departments.

The Department is well equipped with the following laboratories.

- **Engineering Workshop-I (Machine Tools)**
- **Engineering Workshop-II (Metal-work & Bench-fitting)**
- **Engineering Workshop-III (Welding)**
- **Applied Mechanics Lab**
- **Fluid mechanics and hydraulic machines lab**
- **Thermal lab**
- **Metrology lab**

Engineering Workshop-I (Machine Tools):-

For this workshop, state-of-the-art and highly accurate lathe and milling machines have been procured from international vendors to provide our students with hands-on experience on the lines of industrial trends. The coursework is aimed to enhance the students learning in machining of wood and metal parts as they are processed at industrial workshops. The variety of cutting tools available in the machine shop allow students to perform various operations including facing, turning, parting, threading, drilling, boring, knurling, slab milling, face milling and many more.

Engineering Workshop-II (Metal-work & Bench-fitting):-

This section of the workshop has been designed to educate our students in bench fitting works carried out by hand tools. Students are made to practice essential wood and metal working jobs. A wide range of hand tools like chisels, planers, hand saws, mallets, files, marking gauges etcetera, are available for the students so that they can learn to perform related functions and eventually understand various jobs that are carried out manually. This is geared towards their understanding of Engineering Management on the shop-floor.

Engineering Workshop-III (Welding):-

This shop has been equipped with Gas and Electric Arc welding equipment. Under the guidance of trained instructors, students are taught to perform welding operations to form metallic joints.

The hands-on approach in this lab coursework is essential for their managerial role later on in the industries.

Applied Mechanics Lab:-

Applied Mechanics Laboratory at AIEM is prepared according to the requirements of various ME courses. The lab demonstration and practicals are designed to facilitate explanation of the concepts of applied mechanics.

Fluid mechanics and hydraulic machines lab:-

Fluid Mechanics and hydraulic machines lab is developed for demonstrating and understanding of the laws of fluid mechanics. The training units are available in order to help the students understand the mechanisms of fluids such as those presented in Bernoulli theorem, the Venturi principle, turbines, and characteristics of pumps in their different modes of functioning.

Thermal lab:-

While the thermodynamics section covers working mechanism of heat pumps, steam engine mechanism and different refrigeration and air conditioning cycles. The lab also has cut-out Engine modules (both petrol and diesel IC engines) to give an in-depth understanding of the working of IC engines. A combustion unit is also present for testing of different gases under controlled combustion processes. Heat Transfer equipment based on the principles of conduction, convection and radiation has also been successfully deployed in this lab as per the curriculum requirement.

Metrology lab:-

The Metrology Lab is situated alongside the Mechanical Workshops for the purpose of enhancing the accurate functionality of the workshops with the use of wide range instruments like height gauges, vernier calipers, micrometers etcetera. With the help of these tools, students can perform a check on dimensions with accuracy and precision. This lab consists of chosen instruments ranging from Mitutoyo for a reliable assessment of results through high repeatability in readings.