

1) Mechatronics Laboratory



Lab In charge: Dr. Vinayak. H. Deokar

Lab Assistant: S. D. Anuse

Major Equipments: Pick and place robot, PLC trainer kit, Hydraulic and pneumatic trainer kit.

About Laboratory:

Mechatronics labs typically integrate mechanical, electrical, and computer engineering concepts to create systems that involve the synergistic combination of these disciplines. Students often work on projects that involve designing and building automated systems, robotic systems, or smart devices that combine mechanical movements with sensing and control capabilities. Labs conduct experiments to demonstrate principles such as feedback control, system dynamics, sensor integration, and real-time data acquisition.

2) CAD Laboratory



Lab In charge: Dr. G. C. Koli

Lab Assistant: M. D. Ayarekar

Major Softwares

The CAD Laboratory has a total 40 number of computers (workstations) with the latest configurations. Software's available are: CATIA, SolidWorks, ANSYS, and AutoCad.

About Laboratory:

The Computer-Aided Design (CAD) Lab of the Mechanical Engineering Department is established in 2009. The lab facilitates the practicals for the course work of UG students. It expedites the computation platform to execute simulation/ modelling/ analyses related to the work of UG/ PG students of the department.

3) Heat Transfer Laboratory



Lab In charge: Prof. S. K. Pisal

Lab Assistant: M. D. Ayarekar

Major Equipments

About Laboratory:

The goal of the Heat Transfer lab is to grasp the principles of conduction, convection, and radiation through hands-on experiences in different thermal systems for both undergraduate and graduate students. Through a series of experiments, students gain a solid grasp of the theoretical foundations of these concepts, and the entire course is structured in a way that classroom lectures are followed by practical lab sessions. The Heat Transfer Laboratory is fully equipped with facilities for conducting research on energy conversion in internal combustion engines.

4) Manufacturing Processes Laboratory



Lab Incharge : Prof. A. N. Naik

Lab Assistant : M. D. Ayarekar

Major Equipments

- SAND MULLER
- SIEVE SHAKER WITH SIEVE SET.
- UNIVERSAL SAND STRENGTH MACHINE (Pendulum)
- RAPID DRYER

About Laboratory: The laboratory is equipped with specialized tools and instruments crucial for preparing and testing, molding sand for sand casting processes. These include a sand muller for mixing sand with additives, a rapid moisture tester for determining moisture content, a clay washer for cleaning and preparing clay, and a sieve shaker with a sieve set for analyzing particle size distribution. To ensure quality mold preparation, a sand rammer is used for compacting sand in the flask, a rapid dryer for drying molds, and a sensitive balance for precise measurement of additives. These tools collectively enable comprehensive testing and preparation of molding sand to meet specific casting requirements, demonstrating proficiency in sand preparation and mold creation using split patterns for accurate casting production.

5) Theory of Machines Laboratory



Lab Incharge : Prof. R. U. urunkar

Lab Assistant : M. D. Ayarekar

Major Equipments

- Motorized Gyroscope
- Universal Governor
- Whirling of Shaft
- Static & Dynamic Balancing Machine
- Vibration Lab Equipment

About Laboratory:

The Theory of Machine course is offered to Degree & Diploma students and is an important part of the course curriculum. Theory of machine laboratory contains equipment both in the form of working and non-working models through which the students are able to synergies theory and practical skills.

6) Internal Combustion Engine Laboratory



Lab Incharge : Prof. S. B. Deshmukh

Lab Assistant : Mr. S. D. Anuse

Major Equipments:

- Single Cylinder, 4-Stroke Computerized VCR Diesel Engine (Eddy Current Dynamometer)
- Four Cylinder, 4-Stroke CRDI Turbocharged Diesel Engine (Eddy Current Dynamometer)
- Three Cylinder, 4-Stroke Petrol Engine (Maruti 800) with Hydraulic Dynamometer

About Laboratory:

The IC Engine Lab in the Department of Mechanical Engineering offers an enriching experience for students and researchers, bridging the gap between theory and practice. The combination of experiments, simulations, and research projects, students will gain valuable insights into the working principles, thermodynamics, and mechanical aspects of IC engines. Additionally, the lab aims to encourage innovation and creativity in the field of automotive and power generation systems, pushing the boundaries of efficiency and sustainability. Through hands-on experiments and innovative research projects, the lab plays a

crucial role in nurturing skilled engineers who are capable of addressing the challenges and demands of the ever-evolving automotive and power generation industries.

7) Fluid Mechanics Laboratory



Lab Incharge : Prof. D. V. Patil

Lab Assistant : Mr. S. D. Anuse

Major Equipments: Wind Tunnel, Digital Lift & Drag Indicator, Multi Column Inclined tube Manometer, Heleshaw Apparatus.

About Laboratory:

Fluid mechanics principles are fundamental in many engineering disciplines, including aerospace, mechanical, civil, and environmental engineering. Understanding fluid behavior is crucial for designing efficient systems such as pumps, turbines, heat exchangers, and aircraft wings. Fluid mechanics laboratory typically focus on studying the behavior of fluids (liquids and gases) and their interactions with solid surfaces or other fluids. Here are some common aspects

and experiments you might find in a fluid mechanics laboratory. Using techniques like dye injection, or flow visualization setups to observe fluid flow patterns.

8) Material Science & Metallurgy Laboratory



Lab Incharge : Prof. V. D. Thorat

Lab Assistant : Mr. S. D. Anuse

Major Equipments: Magnetic Partical crack detector, Trinocular Microscope with Computerized Attachment, Muffel Furnace & Jominy Quench Bath, double disc polishing machine.

About Laboratory:

A Metallurgy laboratory focuses specifically on the study and analysis of metals and alloys. Metallurgy laboratories are essential in industries like manufacturing, aerospace, automotive, and materials science. They play a crucial role in understanding the properties, behaviors, and applications of metals and alloys, helping to optimize their performance in various environments and applications. Furthermore, the Metallurgical Engineering Scope extends beyond industry jobs, as graduates in this subject can also work as research assistants, scientists.