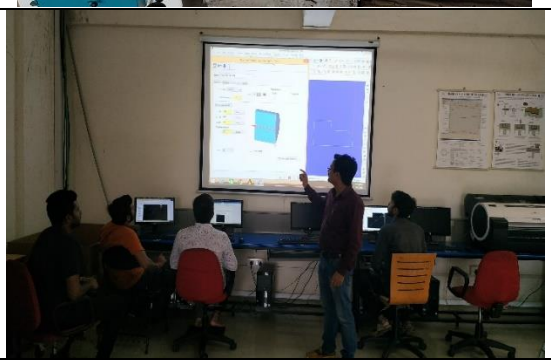
D Y Patil University, Ambi, Pune
School of Engineering and Technology
Department of Mechanical Engineering

	**Hydraulics and Pneumatics Laboratory** This lab is used for application based advance course of Hydraulics and Pneumatics. It is equipped with Hydraulics test rig, Pneumatics test rig, Gear pump test rig and a Compressor
	**Engineering Metallurgy Laboratory** This Lab is used for the course of Material Science & Metallurgy. It is equipped with the Hardness Tester, Magnetic Crack Detector, Optical Microscope & various specimen.
	**CAD/CAM Laboratory** This lab is dedicated to the subjects like CAD/CAM and Automation, Computer Aided Machine Drawing, Numerical Methods and Optimization, Finite Element Analysis. It has been set up with good configuration computer systems, overhead projector with screen, plotter and printer along with high end software like ANSYS, Solidworks, Mastercam.

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	**Refrigeration & Air Conditioning Laboratory** This lab is used to explain transfer of heat energy from a source of heat to thermal reservoir. The most common design of a heat pump involves four main components – a condenser, an expansion valve, an evaporator and a compressor An air conditioners and freezers are familiar examples of heat pumps, the term "heat pump" is more general and applies to many HVAC devices used for space heating or space cooling. Heat pumps usually can be used either in heating mode or cooling mode, as required by the user. When a heat pump is used for heating, it employs the same basic refrigeration-type cycle but in the opposite direction – releasing heat into the conditioned space rather than the surrounding environment.
	**Theory of Machines Laboratory** This lab is used for foundation course like Theory of machines. It is equipped with various setups such as Bifilar suspension, Trifler suspension, compound pendulum, gyroscopic couple etc.
	**Metrology & Quality Control Laboratory** This Lab is designed to enrich the knowledge of the students as per requirement of industry regarding methods of instrument selection for quality checking, Understand and apply Quality Control Techniques. This Lab is Equipped with Profile Projector, Tool Maker's Microscope, Floating Carriage Measuring Machine, Surface Plate. Students can perform various experiments for calibration of Measuring instruments such as Comparators, Verifications of Dimensions, etc.
	Mechatronics Laboratory Mechatronics is the synergistic integration of mechanical engineering, electrical

	engineering, electronics and control theory for the design of intelligent systems. Mechatronics Laboratory under the Department of Mechanical Engineering is one among the important labs that serves academics as well as research. Students can perform various experiments on LVDT, Flow measurement Trainer, PID and PLC Trainer kit, Advanced data acquisition system etc.
	**Dynamics of Vibration Laboratory** This lab is used for application based advance course of Mechanical Vibration. It is equipped with Universal Vibration Test Rig, Shock absorb test Rig, Whirling of Shaft Test Rig, Vibrometer and Noise meter
	**Heat Transfer Laboratory** Heat Transfer Lab is well equipped with the experimental setups to be performed to understand the concepts of heat transfer i.e. conduction, convection & radiation. Experimental setups are used to find the thermal conductivity, heat transfer coefficient & emissivity in heat transfer processes.
	Applied Thermodynamics or IC Engine Laboratory Applied thermodynamics or IC Engine Laboratory is well equipped with the IC engines & compressor setup. It consists of diesel engine setup, petrol engine setup & compressor setup. Heat balance sheet can be prepared using the setups for different loads.

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	**Workshop** Workshop has excellent facilities that include various departments such as turning, milling, welding, grinding, carpentry where students are used to learn different machining operations. Major equipment are CNC Machine, Lathe machine, Milling machine, Grinding machine, welding machine.
	Basic Mechanical Engineering Laboratory Basic Mechanical Engineering lab is often considered as the most basic type of engineering components. It is probably the first branch of engineering which has vast applications in all fields. Mechanical components are responsible for Industrial Revolution and innovations like the steam engine, internal combustion engines, turbines, compressors, pneumatic machines, machine tools, refrigeration and air conditioning systems, etc done by mechanical engineers. Therefore every student should know the basic of mechanical engineering. This lab manual is written with a purpose to bring in understanding of the basic concepts of mechanical engineering and develop as core professional for First Year of Engineering students of all Branches.