SRI PADMAVATI MAHILA VISVAVIDYALAYAM
(WOMEN'S UNIVERSITY) TIRUPATI-
517502.

SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF MECHANICAL ENGINEERING

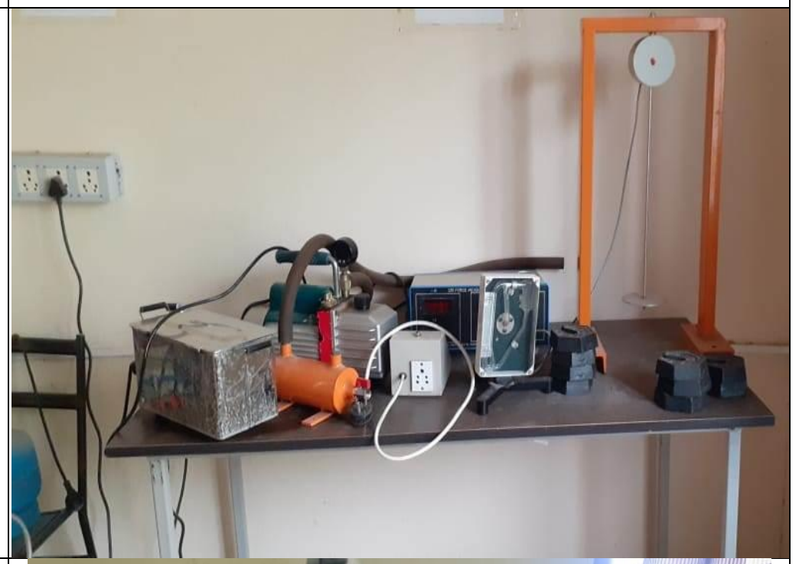
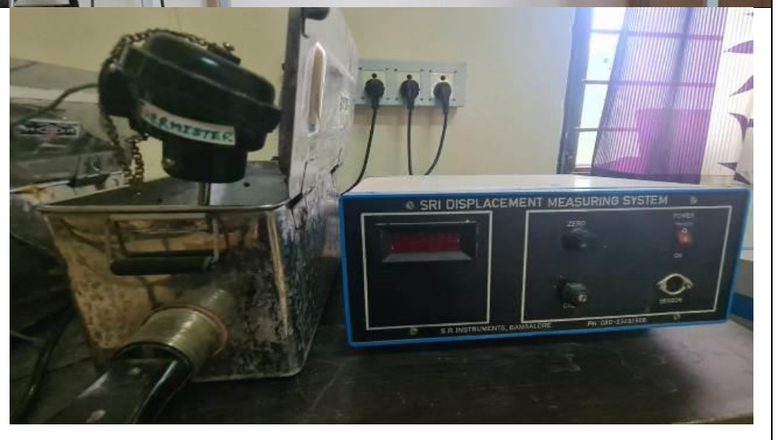
Metrology & Instrumentation Lab

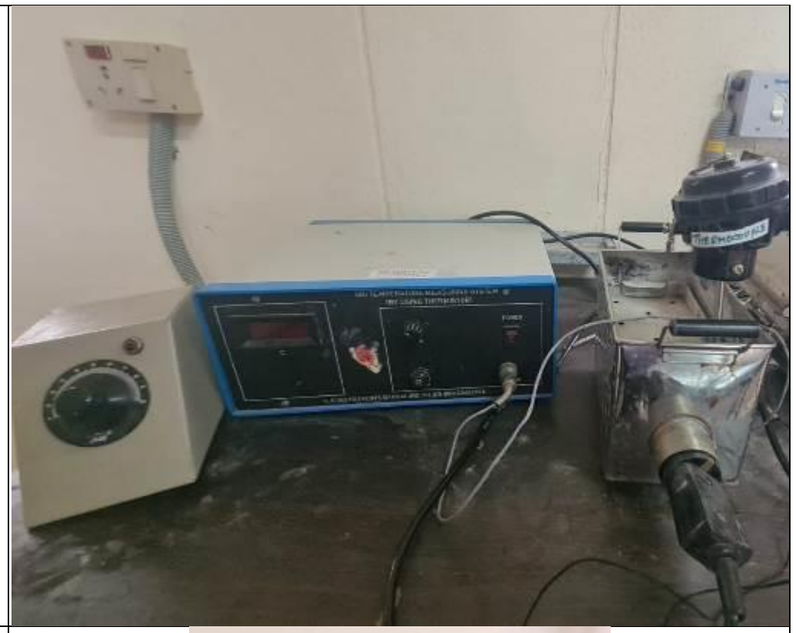
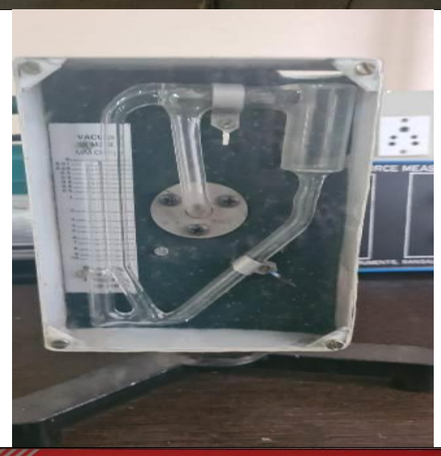
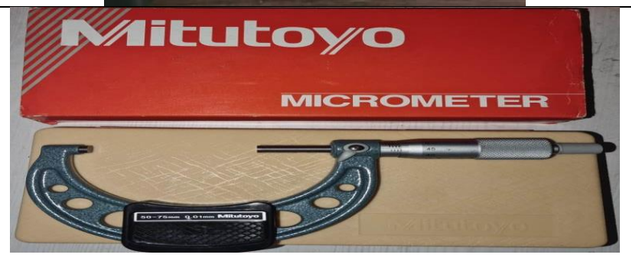
Key Features:

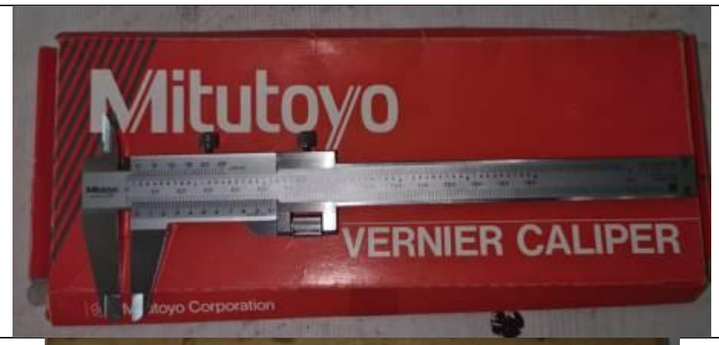
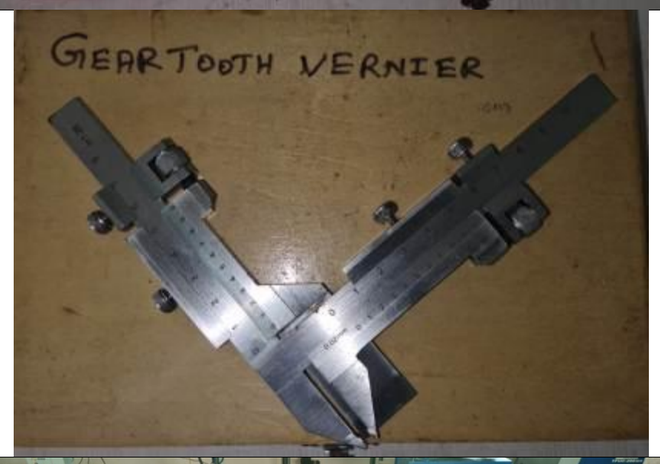
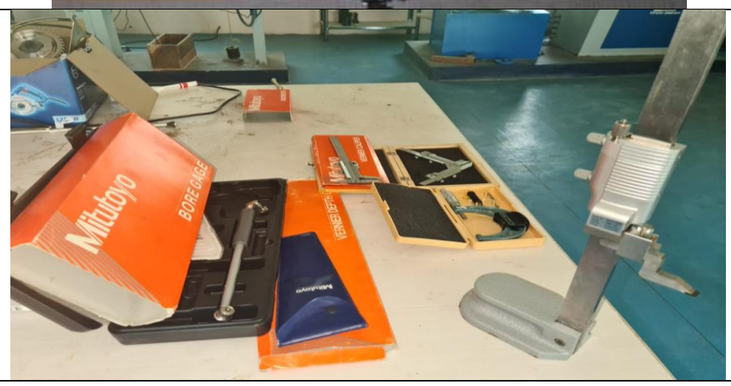
Metrology Lab : Dimensions play a vital role in the manufacturing of a component. A product quality is assured on the basis of mechanical properties as well as its accurate dimensions. Various measuring tools are used in industry to obtain the dimensional accuracy of a component. In this laboratory students will obtain the knowledge of usage of various measuring instruments with hands on experience. This lab provides knowledge about the mass production to improve the quality assurance with less effort and time. Angular measurements are made with bevel protractor and sine bar. Screw and gear features are measured with floating carriage micrometer and gear tooth calipers. Students are able to learn the measurement principles by doing Metrology laboratory experiments. The realistic knowledge on Gear tooth Vernier, Bore dial gauge and different gauges provides wide exposure to the industrial applications.

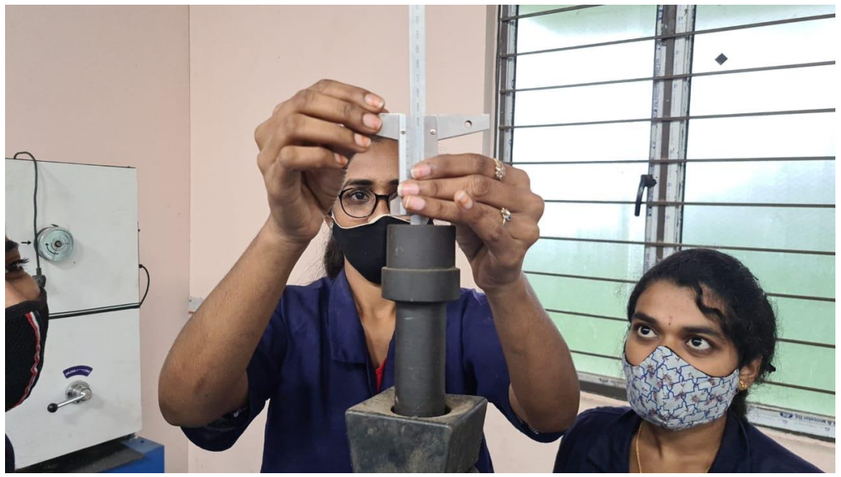
Instrumentation Lab:

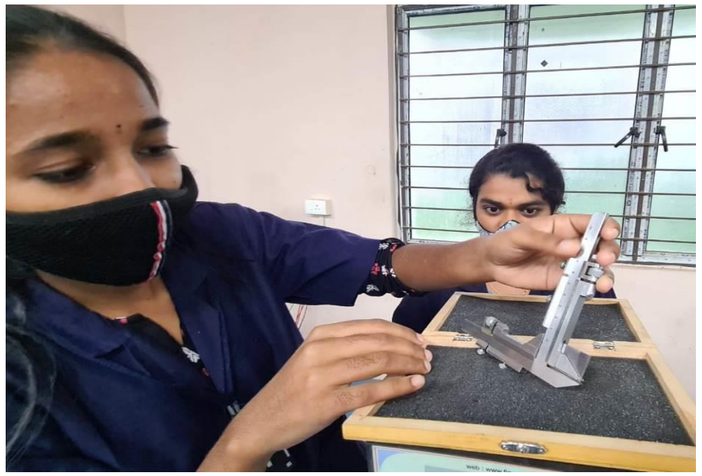
Instrumentation is the heart of performance assurance for the modern industry. The present technologies are mainly operated by various electronic devices. In electronic devices transducer is the key element, which converts any form of signal to electrical signals. This lab gives the awareness to the student, of various transducers. The calibration of various transducers and instruments performances are studied and also analyzed the static and dynamic characteristics of the various instruments. In this lab Thermocouple, Load cell transducers and Pressure Measurement are available for practice.

S.No.	Name of the Equipment	Specification and Key Equipment Details	Equipment Photo
1.	Load cell (or) Force cell Transducer	Power Supply -220V-240V, Force measurement range-1 to 10Kgf	
2	Thermistor	**Thermistor operating conditions** Power supply-220V-240V,50Hz Temperature range- 0 to 110^{0}C Least count -1^{0}C **Thermometer operating conditions** Temperature range -0 to 110^{0}C Least count -1^{0}C	

3	Thermocouple	**Thermistor operating conditions** Power supply-220V-240V,50Hz Temperature range- 0 to 110^0C Least count -1^0C **Thermometer operating conditions** Temperature range -0 to 110^0C Least count -1^0C	
4	Mcleod Gauge	**McLeod Gauge Operating Conditions** Mercury(Hg) in reservoir-50ml Pressure range-0 to 10mmof Hg **Vaccum pump operating conditions** Power supply-220V-240V	
5	Micrometer	1/1000mm graduation Range: 0-25mm Accuracy: 0.01mm Size: 0-25mm	

6	Vernier Caliper	Range = 0-150mm and 0-6" Vernier Graduation Lower Scale = 0.02mm Vernier Graduation Upper Scale = 0.001" Accuracy = +/-0.03mm Depth Bar = Blade Weight = 143g	
7	Gear tooth Vernier	For measuring gear tooth thickness of the primary diameter With fine adjustment Range: 1-26 module 2 scales Wooden box Accuracy: 0.04mm Material : Mild Steel	
8	Bore Gauge	Dial Bore Gauge for Small Holes,10-18.5mm Range Graduation 0.001mm Accuracy 0.005mm	





Lab Incharge

P.Vindhya