



Dr. D. Y. PatilPratishthan's
**DR. D. Y. PATIL INSTITUTE OF ENGINEERING, MANAGEMENT &
RESEARCH**

**Approved by A.I.C.T.E, New Delhi , Maharashtra State Government, Affiliated to SavitribaiPhule Pune
University**

Sector No. 29, PCNTDA ,NigidiPradhikaran, Akurdi, Pune 411044. Phone: 020-27654470, Fax: 020-27656566

Website : www.dypiemr.ac.in Email : principal@dypiemr.ac.in

Name of Department: Mechanical Engineering

Metallurgy lab Testing Facilities

Experimental Set up: Brinell Hardness Tester



Technical Specification

Make/Model	EIE Instruments Pvt.Ltd.
Loads	500 to 3000 in stages of 250
Indenter	Harden steel ball 10 mm dia.
Max. Testing Height mm	254
Depth of Throat mm	150
Size of Base	255x495
Machine Height	860
Net Weight (Approx.)	210

Purpose: Hardness testing of gray cast iron, copper and its alloy, Aluminum and its alloy, porous powder metallurgical components

Experimental set up: Rockwell Hardness Tester



Technical Specification

Make	EIE Instruments Pvt.Ltd.
Model	ALZB250
Test Height	550 ± 5mm
Depth of Throat	150 ± 5mm
Overall Size	515 x 205 x 1020
Weight	210 KG
Automatic load selector	
Automatic zero setting type dial gauge	
60, 100 & 150 KG major load	

Purpose: Hardness testing of heat treated components, case hardened steel parts, cutting tools etc.

Experimental set up: Poldi Hardness Tester



Technical Specification:

Make	K B M Engineering Co.
Model	PHM
Load	Manual
Indenter	Steel ball 10 mm diameter
Standard bar	Material MS BHN:179

Purpose: Measuring the Brinell Hardness of steel cast iron brass Aluminum copper etc

Experimental set up: Ultrasonic Detection Machine



Technical Specification:

Make	Electronic & Engineering CO.P.Ltd
Model	DIGISCAN DS-322
Display	LED 117.2 mm x 84 mm
Pulser / Receiver	
Receiver bandwidth	0.5-6 MHz
Gain	Variable 0-80 dB
Operating mode	Single probe, Double probe, T-R mode
Time base	5 mm min. 5 mtr max
Monitor gate	2 gate
Monitor Logic	+ve/ -ve logic selectable

Purpose: Flaw detection/evaluation, Inspection of casting, forged components and welded parts

Experimental set up: Ultrasonic Thickness Gauge



Technical Specifications:

Make	India Tools and Instruments
Model	ITI-16000
Measuring Range	0.65- 500 mm
Low limit of pipe	$\varnothing 15$ mm x 1.0 mm (7.5 MHz, $\varnothing 6$ mm) $\varnothing 10$ mm x 1.2 mm (7.5 MHz, $\varnothing 6$ mm)
Display Resolution	0.01 mm/0.001 inch 0.1 mm/ 0.01 inch
Material Velocity	509-18699 m/s
Measurement Resolution	$\pm(0.5z5H+0.05)$ mm
Bandwidth	1 MHz- 10 MHz(-3dB)
Measuring Rate	2-20 times/sec
Power Supply	3VDC(two AA Batteries)
Screen	128x64 LCD
Size	136 L x 72 w x 20 H mm

Purpose: Investigation of a material's thickness using ultrasonic waves, Dimensional measurements, digital thickness measurement

Name of the Lab : Workshop



Photo:- CNC LATHE TRAINER, POWER TURN MODEL SS-PT-100

Supplied by:- Square Systems, Pune

Applications:

- 1.Setting the Lathe operation for Job Trials
- 2.Make the program for required job using G and M codes
- 3.Machining Process Analysis
- 4.Study the simulation of job.

CNC LATHE TRAINER SPECIFICATIONS

Model	SS-PT-100
Swing over bed	200mm
Swing over carriage	70mm
Distance between centers	310mm
Max. Machining diameter	32mm
Max. Longitudinal Travel	300mm
Spindle inside diameter	MT3
Type of bearing for spindle	Angular contact bearings
Spindle Speed	50 to 3000 rpm
Thrust (max.)	120Kg.
Cross Slide inclination	30 deg.
Standard cutting tool size	16x16mm
Spindle motor	AC / DC motor, 1hp
Threading	Straight
Automatic lubrication points	Provided
Input System	Metric/Inch
Control axes	Simultaneous axes
Interpolation	Linear & Circular
Minimum movement command X	0.005 mm
Minimum movement command Z	0.005 mm
Rapid Feed rate X	200mm/min
Rapid Feed rate Z	200mm/min
X AXIS BALLSCREW	16 mm x 5 mm PITCH
Z AXIS BALLSCREW	25 mm x 5 mm PITCH
Feed override	100%
Dwell (seconds)	Programmable
Backlash compensation	Provided
Constant surface speed control	G96, G97
Canned Cycles	Available
In built interface	Parallel
Manual reference point return	Provided
Emergency stop	Provided
S function	Provided
Floor space required	1200 x 700mm
Overall height of machine	1400mm
Net weight	210Kg.

Name of Equipment: Fast Fourier Transform Analyzer (FFT)

Make: DEWESoft Measurement Innovation

Model No: DEWE-43A

Specifications:

Analog inputs	
Number of channels	8
Inputs	Voltage, bridge (IEPE, temperature with adapters)
ADC type	24 bit sigma delta with anti-aliasing filter (see section ADC)
Sampling rate	simultaneous 200kS/sec sampling rate
Input type	Differential
Input ranges	$\pm 10\text{V}$, $\pm 1\text{V}$, $\pm 100\text{mV}$, $\pm 10\text{mV}$
Sensor supply	12V, 400mA sensor supply $\pm 5\text{V} \pm 0.1\%$ bridge sensor supply
Overvoltage protection	$\pm 70\text{V}$ input protection
Dynamic range	107dB@ $\pm 10\text{V}$ range
DC accuracy 10 V range	0,05% of value +1 mV
Input impedance	20M Ω 47pF(differential) 10M Ω 33pF(common mode)
CMRR	>80dB (see section CMRR)
Maximum common mode voltage	$\pm 13\text{V}$
Signal to noise 0.1kS/s to 51.2kS/s 51.2ks/s to 102.4kS/s 102.4kS/s to 200kS/s	105dB 100dB 75dB
Channel-to-Channel Phase Mismatch	<0.1deg @5kHz
Phase-to-Phase Mismatch	-0.6deg @1kHz

