



# Techno India N.J.R. Institute of Technology

Academic Administration of Techno N.J.R. Institute

## Syllabus Deployment

Name of Faculty	: Mr. Harish Bairwa	Subject Code: 8ME4-22
Subject	: Metrology Lab	
Department	: Mechanical Engineering	Sem: VIII
Total No. of Lectures Planned:	14	Max. Marks: 50(IA: 30, ETE: 20)

### COURSE OUTCOMES:

At the end of this course students will be able to:

- CO1: Develop quality standards of engineering products in industries.
- CO2: Demonstrate work in quality control departments of industries and to ensure quality of products.
- CO3: Analyze the measurement of the surface roughness and perform alignment tests.
- CO4: Develop the ability to apply the principles in instruments and measuring techniques.
- CO5: Demonstrate work in designing the instrumentation for a particular purpose and special purpose devices.

LAB No.	LIST OF EXPERIMENTS
1	Study of various measuring tools like dial gauge, micrometer, vernier calliper and telescopic gauges.
2	Measurement of angle and width of a V-groove by using bevel protector.
3	To measure a gap by using slip gauges
4	Measurement of angle by using sine bar.
5	Study and use of surface roughness instrument (Taylor Hobson make) Inspection of various elements of screw thread by Tool makers microscope and optical projector.
6	Measurement of gear tooth thickness by using gear tooth vernier caliper.
7	To check accuracy of gear profile with the help of profile projector.

8	To determine the effective diameter of external thread by using three-wire method.
9	To measure flatness and surface defects in the given test piece with the help of monochromatic check light and optical flat.
10	To plot the composite errors of a given set of gears using composite gear tester.
11	Measurement of coating thickness on electroplated part and paint coating on steel and non-ferrous material using coating thickness gauge.
12	Study and use of hardness tester for rubber and plastics.
13	To check the accuracy of a ground, machined and lapped surface - (a) Flat surface (b) Cylindrical surface
14	To compare & access the method of small-bore measurement with the aid of spheres.

### **TEXT/REFERENCE BOOKS**

1. JAIN R.K, ENGINEERING METROLOGY, KHANNA PUBLISHERS, 1994,17TH EDITION.
2. N.V RAGHAVENDRA AND L. KRISHNAMURTHY, ENGINEERING METROLOGY AND MEASUREMENTS, OXFORD UNIVERSITY PRESS, 2014.