



Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	P	OJT		Theory		Tutorial/ Practical		
			University exams (ESE)	Progressive Assessment (PA)	External Practical /viva Exam (ESE)	Internal evaluation Practical /viva Exam (PA)		
-	2	-	2	-	-	30	20	50

L- Lectures; P- Practical; OJT- On Job Training; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

Content:

Sr. No.	Content	Hrs
1	Measurement of angle with the help of sine bar/ Vernier Bevel protractor.	2
2	Study and sketch of various types of optical projectors.	4
3	Study and sketch of various types of comparators and use them for comparing length of given piece.	2
4	To measure the diameter of a hole with the help of precision balls.	2
5	To measure external and internal taper with the help of taper gauges, precision rollers.	4
6	To test the squareness of a component with auto-collimeter.	2
7	To measure the pitch, angle and form of thread of a screw.	2
8	To measure the geometry of a gear having involute profile.	2
9	To measure the straightness of the edge of a component with the help of autocollimeter.	2
10	To measure the length, breadth, thickness, depth, height with micrometer.	2
11	To measure the length, breadth, thickness, depth, height, with height gauge and Vernier	2
12	Calibration of Vernier calipers/micrometers.	2
13	Calibration of height gauge/depth gauge.	2
14	Study of a tool maker's microscope.	2
15	Checking of accuracy of snap gauge with slop gauge.	2
16	Checking of accuracy of a plug gauge with micrometer.	2
17	Measurement of areas by polar planimeter.	2
18	Use of feeler, wire, radius and fillet gauges measurement of standard parameters.	4
	Total	42

Course outcomes:

After learning the practical the students should be able to:

1. Use linear , angular and taper measurement devices for measurement of various automobile components.
2. discriminate between various screws, gears and automobile components by measuring their dimensions using miscellaneous methods.



GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Bachelor of Vocation (B.Voc), 1st Semester

Branch: Automobile Servicing

Subject Name: Metrology & Measuring Instruments- Lab.

Subject Code: 1110105

**With effective
from academic
year 2018-19**

3. describe basic concepts of mechanical measurement and errors in measurements and learn to calibrate various instruments.

Reference Books

1. Mechanical Measurement and Metrology by R K Jain, Khanna Publisher.
2. Mechanical Measurements and Instrumentations by Er. R K Rajput, Kataria Publication.
3. Mechanical Measurements by Beckwith & Buck, Narosa publishing House.