GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD.

ENGINEERING MEASUREMENTS - I

1. RATIONALE :

Work in an industry is characterized by certain specific features which in turn makes certain demands on the technician. First of all, he must be able to accurately measure physical quantities using appropriate measuring equipment. He must perform all experiments and related operations accurately in strict accordance with the relevant manual, standards or text books. Particular care must be taken to use these apparatus/ instruments carefully.

This course on Engineering Measurement intends to develop elementary measurement skills in the students. It is an interdisciplinary course emphasizing the development of personal attributes like spirit of enquiry, problem solving etc. Some elementary skills in error analysis, safety precautions and interpretation of results are to be developed through this course.

2. SCHEME OF TEACHING :

Sr. No.	Particulars	Hours
1.	Planning & Introduction	04
2.	Preforming Experiments	20
3.	Assessment/Submission	04
	Total	**28**

3. OBJECTIVES :

The students should be able to :

* Use appropriate units for each physical quantities.
* Read the physical quantities for basic measuring instruments .
* Record Observed data in the designed observation table accurately.
* Compute/Report the results based on the measurements taken accurately wherever necessary.

4. LABORATORY EXPERIENCES :

1. Linear measurement by using vernier callipers
2. Precision measurement by Micrometer screw gauge.
3. Measurement of specific gravity of given solid and lubricating oil.
4. Varification of Ohm's law.
5. Measurement of resistance by using Wheastone bridge.

6. Determination of resultant resistance of series and parallel combination.
7. Determination of acceleration due to gravity (g) using simple pendulum.
8. Determination of surface tension of a given liquid.
9. Determination of hardness of given sample of water.
10. Determination of Young's modulus.
11. Determination of acid value and saponification value of lubricating oil.
12. Determination of Centre of gravity for given lamina.
13. Determination of moisture content of given sample of coal.

Note : 1. MInimum 10 experiences to be performed during the term in this course from the above given list looking to the avaiable resourses at the Polytechnic.
2. The experiences should be changed every year as far as possible.
3. Assessment should be continuous and progressive.
4. Student should be provided an opportunity to take measurement independently.
5. Lectures should be arranged before starting actual laboratory work.
6. Practical examination : 50 % marks of term work.