



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

DEPARTMENT OF MECHANICAL ENGINEERING



The measurement of a given quantity is essentially an act or result of comparison between a quantity, whose magnitude (amount) is unknown with a similar quantity whose magnitude (amount) is known, the latter being called standard.

Measurement

Measurement involves the use of the instrument as a physical means of determining quantities or variables.

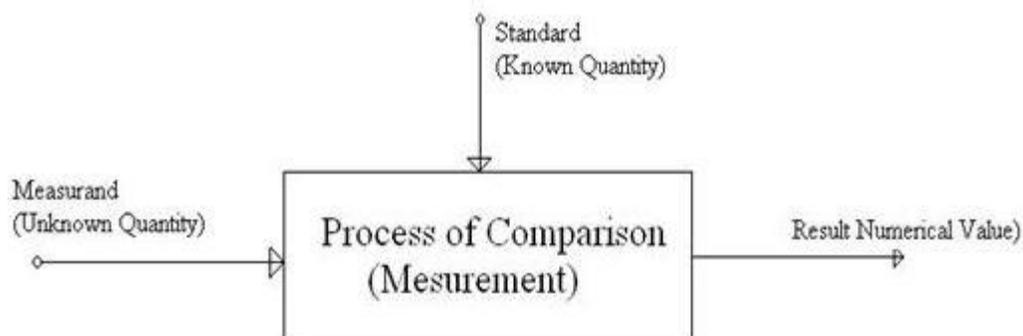
The instruments serve as an extension of human faculties and enable the man to determine the value of unknown quantity or variable which with unaided faculties cannot measure.

The instrument consist of a single unit which gives an output reading or signal according to the unknown variable (measurand) applied to it.

In more complex measuring situation a measuring instrument may consist of several separate elements.

These elements may consist of a transducing element which converts the measurand to an analogous form the analogous signal is then processed by some intermediate means and then fed to the end device to present the results of the measurement for the purpose of display, record and control.

Because of this modular nature of the elements within it, it is common to refer the measuring instrument as a measuring system.



Functions of Instruments and Measurement Systems

Instruments or measurement system are classified based upon the function they performed.

1. **Indicating Function:** Different kinds of methods for supplying information concerning the variable quantity under measurement.
- 2 **Recording Function:** Stores or write the value of a quantity under measurement.
3. **Controlling Function:** In this case, the information is used by the instrument or the system to control the original measured.

Application of Measurement Systems

1. Monitoring of process and operation- simply indicating the value or condition of the parameter under study. For example- water and electricity meter.
2. Control of process and operations- automatic control system a very strong association between measurement and control for example -refrigeration with thermostatic control.
3. Experimental Engineering analysis: engineering problem, theoretical and experimental methods may be used depending upon the nature of the problem.