

MEASUREMENT PRACTICAL

AIM: To demonstrate various measurement techniques commonly used in the assessment of the thermal environment.

EXERCISES:

Break up into your allocated group and complete the four (4) exercises below. A maximum of 25 minutes is allocated for each exercise before rotating to the next exercise.

1. *Measurement of air movement*

Using a Kata thermometer and a hot wire anemometer measure at a set distance the airflow generated from a stationary source (small fan). Measure the ambient temperature and calculate the air velocity from this and the Kata thermometer readings. Adjust the fan so that the airflow is very low and observe the airflow patterns using a smoke tube.

2. *Measurement of humidity*

Using a sling psychrometer (whirling hygrometer) determine the humidity within the lecture room and outside the building in the ambient atmosphere.

3. *Measure radiant load with a globe thermometer*

Using a black globe thermometer measure the radiant temperature at a set distance from a radiant energy source (heat lamp).

4. *Use of a Thermal Environment monitor*

Using a portable instrument, measure and record the dry bulb, wet bulb and globe temperature within the lecture room. Repeat the exercise in the ambient atmosphere outside the building.