

M502: THERMAL ENVIRONMENT

PRACTICAL SESSION – EQUIPMENT LIST & NOTES FOR LECTURERS

1. Airflow Measurement

Kata thermometer, hot water, nomogram, ruler, pencil, small fan, stopwatch

2. Humidity Measurement

Whirling hygrometer (sling psychrometer), distilled water, psychrometric chart, ruler, pencil

3. Radiant Heat Measurement

150 mm globe thermometer, radiant heat source (IR lamp)

4. Thermal Monitor

Portable thermal index monitor (eg WBGT), computer software (if appropriate), graph of a thermal environment with solar load and no solar load (in case of adverse weather conditions)

Notes:

- a) It is important each group attempts all exercises. Assist any group which is experiencing difficulty.
- b) Conduct the Kata thermometer exercise with and without the auxiliary fan to ensure students understand the uses for this instrument. Discuss the issue of radiant heat influencing results and the means by which this can be overcome.
- c) When using the whirling hygrometer, demonstrate how not only the relative humidity can be obtained from the psychrometric chart but also the dew point and vapour pressure.
- d) Demonstrate the portable monitoring unit both indoors with no solar load and outdoors with solar load. If weather conditions do not permit this, have a standby chart from the instrument indicating these conditions.