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SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY
SAULT STE MARIE, ONT.

COURSE OUTLINE

COURSE TITLE: ENGINEERING SCIENCE

CODE NO. : ELR 105

PROGRAM: ELECTRICAL & ELECTRONICS ENGINEERING TECHNOLOGY

SEMESTER: FIRST

AUTHOR: MRS. K. CHENG

DATE: AUG 24, 1989

PREVIOUS
OUTLINE DATED: (1987?)

APPROVED: *K. Cheng* 9/10/89
CHAIRPERSON DATE

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III. TOPICS TO BE COVERED

A) FUNDAMENTALS OF MEASUREMENT

- Fundamental Units and conversions
- Direct vs Inferred Measurements
- Static vs Dynamic Characteristics

B) TEMPERATURE MEASUREMENT

1. Thermocouples:

Basic principle of Operation
Materials
Thermocouple Tables
Cold Junction Compensation
Protection

2. Thermometers:

Filled Systems
Bi-metallic
Mercury in glass

3. Others:

Resistance Thermometers
Pyrometers
Radiation Thermometers

4. Review how heat is transferred and temperature scales:

Convection
Conduction
Radiation
Celsius
Fahrenheit
Rankine
Kelvin

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E) LEVEL MEASUREMENT

1. Direct Methods:

- floats
- displacer
- contact
- probes: conductivity, capacitance, ultrasonic

2. Indirect Methods:

- hydrostatic: differential pressure meters, bubbler
- radioactive
- loss of weight

F) HUMIDITY MEASUREMENT

1. Define humidity and related fundamental concepts:

- absolute humidity
- relative humidity
- dew point

2. Humidity measuring devices:

- hygrometers
- psychrometers
- dew cells