

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: MEASUREMENTS

CODE NO: ELR 115-2

PROGRAM: G.A.S. PRE ENGINEERING

SEMESTER: TWO

DATE: SEPTEMBER, 1987

AUTHOR: NORM BARKER

New _____ Revision: X

APPROVED: *L.P. Crozietto* 19870915

CHAIRPERSON DATE

COURSE NAME

COURSE NUMBER

PHILOSOPHY/GOALS:

With the aid of manufacturers' manuals, successful students will be capable of measuring voltage, current, resistance, frequency, and pulse parameters. Using common electrical and electronic test instruments, they will be able to describe the fundamental operating principles of the test equipment used.

METHOD OF ASSESSMENT (GRADING METHOD):

1. Written and practical tests will be announced at least one week in advance.
2. Short quizzes may be given without notice.
3. Each student will be subject to continuous evaluation in the laboratory with emphasis on skill in the use of test equipment, work habits, effort, participation and attitude.

COURSE WEIGHTING

Theory 60%
Practical 40%

ASSIGNED GRADES

"A" - 80 - 100%
"B" - 66 - 79%
"C" - 55 - 65%
"R" - Less than 55%

In the case of final marks less than 55% and greater than 50%, consideration will be given to a supplemental examination covering the whole course, with a maximum mark of 55%.

REFERENCES:

Manufacturers' Manuals

Electronic Instrumentation and Measurement Techniques (Cooper)

Electronic Instrumentation and Measurement (Bell)

ELR 115-2 - MEASUREMENTS

BLOCK

TOPIC

- 1
 - Colour Code and Measurement of resistance
 - Circuit Symbols
 - Identification and elementary testing of components - R, L, C, switches, potentiometers, transformers, fuses

LAB 1 - COMPONENT IDENTIFICATION AND TESTING

- 2
 - Operating Procedures: VOM, DMM, ANATEK DC POWER SUPPLY, DECADE BOX
 - Circuit construction and testing
 - Measurement of voltage and current

LAB 2 - CIRCUIT CONSTRUCTION AND TESTING

- 3
 - Soldering Techniques
 - Replacing of components on P.C.B.'s

LAB 3

- 4
 - Introduction to house wiring and code

LAB 4 - SWITCH AND LAMP WIRING

- 5
 - PMMC Meter movement
 - Shunts and multipliers
 - Moving iron meter movement
 - Loading effects

LAB 5 - VOM MEASUREMENTS, DC AND AC LOADING, EFFECTS

- 6
 - Operating procedures - Oscilloscope, Tektronics Model 22/3, Function Generator, Pulse Generator, Frequency and Period measurement

LAB 6 - MEASUREMENT OF FREQUENCY AND PERIOD USING THE OSCILLOSCOPE