

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: MEASUREMENT AND SHOP PRACTICE
Code No.: ELR 114-3
Program: ELECTRICAL/ELCTRONIC/COMPUTER TECHNICIAN
Semester: ONE
Date: JUNE, 1987
Author: NORM BARKER

New: XX Revision: _____

APPROVED: *L.B. Crockett* 87-08-18
Chairperson Date

Course Name

Course Number**PHILOSOPHY/GOALS:**

To provide a sound understanding of the operating principles, characteristics and limitations of commonly used electrical measuring devices. Approximately fifty percent of class time will be spent in laboratory exercises to develop skills in the use of those instruments, together with familiarization with the appropriate manufacturers' manuals.

The graduate will also be capable of developing and conducting calibration procedures and equipment performance test.

METHOD OF ASSESSMENT (GRADING METHOD):

1. Written tests will be held at the end of one or more blocks of work and at least one week's notice will be given. Test questions may cover work from previous blocks.
2. Short quizzes may be given without notice.
3. Laboratory log books are to be maintained and must be ready for assessment one week after scheduled completion of the laboratory session.
4. Each student will be subject to continuous evaluation in the laboratory, with emphasis on skill in the use of tools, test equipment, work habits, effort, participation and attitude.
5. Students are reminded that all laboratory exercises are mandatory.

6. COURSE WEIGHTING:

Theory 60%
Practical 40%

ASSIGNED GRADERS ARE:

"A" - 80 to 100%
"B" - 66 to 70%
"C" - 55 to 65%
"R" - Less than 55%

In the case of final marks less than 55%, consideration will be given to a supplemental examination covering the whole course. The maximum mark that can be obtained on the supplemental is 55%.

REFERENCES:

TEXT:

FUNDAMENTALS OF ELECTRIC CIRCUITS (BELL)

BLOCK

TOPIC

1

COMPONENT IDENTIFICATION AND TESTING

Resistor colour code
Operating procedures for:
 Simpson VOM Model 260
 Keithley DMM Model 169
 Wheatstone Bridge
 Sencore Z Meter
Symbols, characteristics and testing of:
 Capacitors
 Inductors
 Transformers
 Switches
 Potentiometers
 Fuses

2

CIRCUIT CONSTRUCTION, TRACING AND TESTING

Operating procedures, Anatek Power Supply Model 50
"Proto-board" construction and testing of resistor
 networks
Trace PCB circuits

3

SOLDERING TECHNIQUES

Replace components on PCBs
Demonstration - PCB fabrication
Cable fabrication and repair

4

METER MOVEMENTS AND APPLICATIONS

Permanent magnet moving coil instrument
Moving iron instrument
Calculation of shunts and multipliers
Instrument loading effects
Trace Simpson VOM circuit
Errors in measurements
Ohmmeter principles

5

OSCILLOSCOPES & SIGNAL GENERATORS

Electrostatic cathode ray tube
Operating procedures
 Tektronics Scope Model 2213
 Function generator
 Pulse generator
Simplified Block Diagram Tektronics MOD 2213