

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: MEASUREMENTS AND SHOP PRACTICES

CODE NO.: ELR - 114

PROGRAM: ELECTRICAL/ELECTRONIC/COMPUTER TECHNICIAN

SEMESTER: ONE

DATE: SEPTEMBER 1991

AUTHOR: E. SOWKA

NEW: _____ REVISION: XX

APPROVED: *L. Crockett*
Chairperson

DATE: 9/108/21

MEASUREMENTS AND SHOP PRACTICES (ELR114)

PHILOSOPHY/GOALS

To provide a sound understanding of operating principles, characteristics and limitations of commonly used electronic test equipment and electronic shop practices.

Approximately 75% of class time will be spent on laboratory exercises to develop skills in the use of this equipment.

METHOD OF ASSESSMENT

1. The student may be tested at the completion of each block of work. At least one week notice will be given for these and other major tests.
2. These tests may be theoretical, practical or combination of both.
3. Short quizzes may be given without notice.
4. Each student will be subjectively evaluated continuously based on skills in the use of equipment, work habits, participation, attendance and attitude.

ASSESSMENT SUMMARY

PRACTICAL - 60%

THEORY - 30%

SUBJECTIVE - 10%

REFERENCES

Text - Fundamentals of Electric Circuits
David A. Bell (current edition)

Manufacturers Equipment Manuals

Supplier Catalogues

Instructors Lab Assignments

COURSE OUTLINE

BLOCK ONE ELECTRONIC COMPONENT IDENTIFICATION

Upon completion of this block, the student will be able to;

- Identify common electronic components
- Determine components' electrical characteristics
- Recall and draw the schematic symbols of these components
- Recall and use the Resistor & Capacitor Colour Codes to identify resistors and capacitors

BLOCK TWO (A) ELECTRONIC TEST EQUIPMENT

Upon completion of this block, the student will be able to;

- Recall and understand the block diagram of a Voltmeter, Ammeter and Ohmmeter
- Correctly operate the following test equipment:
 1. Keithley 169 Digital Multimeter
 2. Simpson 260 Volt/Ohm/Milliammeter
 3. Anatek 50-1S DC Power Supply
- Correctly use the above equipment to:
 1. Test electronic components
 2. Measure voltage, current and resistance in series, parallel and series/parallel combination circuits.

BLOCK TWO (B) THE OSCILLOSCOPE

Upon completion of this block, the student will be able to;

- Recall and understand the block diagram of a basic Cathode Ray Oscilloscope
- Correctly operate the following test equipment;
 1. Leader LBO-1021 20 Mhz Oscilloscope
 2. Topward 8102 Function Generator
- Correctly use this equipment to analyze amplitude, time, period and frequency of sinusoidal and non-sinusoidal waveforms.

BLOCK THREE SOLDERING/DESOLDERING TECHNIQUES

Upon completion of this block, the student will be able to;

- Identify and understand the use of common tools and equipment used in electronic repair.
- Correctly use this equipment to remove/insert electronic components on printed circuit boards and make simple wire connections.
- Understand Surface Mount Technology (SMT) and its impact on soldering/desoldering techniques.