SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: ELECTRICAL FUNDAMENTALS

Code No.: ELR 104-3

Program: MECHANICAL

Semester: ONE

Date: AUGUST 1986

Author: ----------

New: _____ Revision: X

APPROVED: L P Orazietti (Chairperson) 86-08-18 (Date)

CALENDAR DESCRIPTION

ELECTRICAL FUNDAMENTALS	ELR 104
Course Name	Course Number

PHILOSOPHY/GOALS:

When the student has completed this course, he should be familiar with the basic concepts of DC and AC circuits, which are necessary so that the student can continue to progress through the Electrical/Electronic Technology Program.

METHOD OF ASSESSMENT (GRADING METHOD):

Students will be assessed on a series of written tests.

Grades will be "A", "B", "C", or "R".

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

REFERENCE TEXTS:

Electrical Circuits - DeFrance

Fundamentals of Electric Circuits - David A. Bell
3rd Edition

Introduction to Circuits - Lew W. Churchman

ELECTRICAL FUNDAMENTALS

ELR 104-3

TOPIC NO.	PERIODS	DESCRIPTION
1	8	System of Units Fundamental Units, Scientific Notation, Electric Current, Resistance, Conductance, Potential Difference, Voltage (EMF), Ohm's Law, Electrical Power and Energy, Electrical Measurement
2	6	Conductors, Insulators, Resistors Construction, Temperature Effect, Resistor Colour Code, Dry Cells
3	6	Series Circuits Voltage & Current in a Series Circuit, Voltage Drops in a Series Circuit, Voltage Divider, Power, Open & Short Circuit, Problem
4	6	Parallel Circuits Voltage, Current and Resistance in a Parallel Circuit, Parallel equivalent Circuits, Open & Short Circuits, Problems
5	6	Series-Parallel Circuits Voltage & Current in a Series-Parallel Circuit, Equivalent Circuits of a Series-Parallel Circuit, Open and Short Circuits of a Series-Parallel Circuit, Analysis and problems on Series-Parallel Circuits

6	6	Capacitance & Inductance Electrical Charge & Field, Definition of Capitance, Capitance in Series & Parallel Time Constant, Types of induction, Inductors in Series and Parallel Inductive and Capactive Circuits, Problems
7	6	Introduction to Magnetism Permanent Magnets, Electro-magnetic theory, Reluctance and Permeability, Hysteresis, Eddy Currents
8	6	A.C. Fundamentals Generation of A.C. Voltage, Analysis of Sine Wave, A.C. Loads, Phasors, and complex algebra
9	5	Power in A.C. Circuits RL, RC, RLC Series & Parallel Circuits, Power, Power Factor
10	5	Transformers Principles of Transformers, Type of Transformers, Transformer on Load and no Load, Open & Short Circuit Analysis