SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

# COURSE OUTLINE

Course Title: CONTROL SYSTEMS

Code No.: ELN 214-4

Program: ELECTRICAL/ELECTRONIC TECHNICIAN

Semester: 4

Date: MAY 1986

Author: R. PEARMAN

New:_____ Revision:_____

APPROVED: L.P. Arsenault
Chairperson

Date

| CONTROL SYSTEMS | ELN 214-4 |
|---|---|
| Course Name | Course Number |

**PHILOSOPHY/GOALS:**

To provide an introduction to the basics of analog and digital control systems and robotics.

**METHOD OF ASSESSMENT (GRADING METHOD):**

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

The marking is distributed as follows: Theory 70%, laboratory 30%.

| LEC | LAB | TOPIC |
|---|---|---|
| 6 | 10 | <u>Introduction to Control Systems</u><br>Block diagrams<br>Open and closed loop control<br>Advantages<br>Effects of load changes<br>Objectives of a control system<br>Damping and instability<br>Performance criteria<br>Classification of control systems |
| 4 | 4 | <u>Linear and Angular Measurement</u><br>Linear measuring devices<br>Angular measuring devices<br>Synchros, resolvers, A/D and D/A conversions<br>Encoders, incremental and absolute |
| 6 | 4 | <u>Final Control Elements</u><br>DC and AC servomotors<br>Stepper motors<br>Hydraulic and pneumatic devices<br>Power electronics |
| 14 | 12 | <u>Introduction to Robotics</u><br>Advantages<br>Classification<br>End of arm tooling<br>Control modes<br>Sensors<br>Power systems<br>Applications |