SAULT COLLEGE
of Applied Arts and Technology
Sault Ste. Marie

COURSE OUTLINE

TECHNICAL DRAWING & DESIGN

ELR 201 - 2

revised June, 1980 by R. Pearman

TECHNICAL DRAWING & DESIGN

ELR 201-2

TEXT:

Electrical and Electronics Drawing, by Baer and Ottaway
(4th Edition)

Technical Drawing & Design

ELR 201-2

TOPIC	LAB	DESCRIPTION
1	2	TECHNIQUES AND LETTERING Review of lettering techniques, use of drafting equipment and templates.
2	2	PICTORIAL DRAWING The types and applications of isometric, oblique, dimetric and perspective drawings.
3	2	DEVICE SYMBOLS Use of templates and drafting equipment to draw standard device symbols.
4	4	PRODUCTION DRAWINGS (ELECTRONIC) The preparation and application of production drawings (connection, cabling, harness, sheet-metal layouts, assembly and printed circuit layouts).
5	2	FLOW DIAGRAMS AND LOGIC DIAGRAMS The preparation and use of system flow and logic diagrams.
6	4	ELEMENTARY OR SCHEMATIC DIAGRAMS Layout procedures and preparation of basic electronic circuits.
7	~~4~~ 2	MICROELECTRONICS (ELECTRONICS) An introduction to the preparation of integrated circuit masks.
8	10 ~~8~~	INDUSTRIAL CONTROLS Preparation of industrial control schematics of electro-mechanical, electrical, solid-state logic, programmable controller, and computer controlled systems.
9	~~6~~ 4	ELECTRICAL POWER SYSTEMS (ELECTRICAL) Preparation of one-line, three-line diagrams of industrial plant layouts, substation distribution, etc.

TOPIC	LAB	DESCRIPTION
10	2	RESIDENTIAL AND COMMERCIAL LAYOUTS (ELECTRICAL) Preparation of electrical drawings for residential and commercial buildings.

Technical Drawing & Design ELR 201-2

SPECIFIC OBJECTIVES

BLOCK 1: Techniques and Lettering

At the end of this block the student shall be able to:

1. Demonstrate the use of his drafting equipment to:
    a) Do line work
    b) Use symbol templates
    c) Letter (Freehand and using guidelines)

BLOCK 2: Pictorial Drawing

At the end of this block the student shall be able to:

1. Know the application of pictorial drawings and be able to produce isometric, oblique, dimetric and perspective drawings.

BLOCK 3: Device Symbols

At the end of this block the student shall be able to:

1. By the use of templates and drafting equipment be able to draw electrical/electronic circuit symbols in accordance with 76-ANSI/IEEE Y32E and IEC standards.

BLOCK 4: Production Drawings (Electronic)

At the end of this block the student shall be able to:

1. Know the application and be able to draw any of the following types of production drawings:
    a) Connection, or wiring, diagrams
    b) Cabling diagrams
    c) Harness diagrams
    d) Sheet-metal layouts
    e) Assembly drawings
    f) Printed circuit layouts

BLOCK 5: Flow Diagrams and Logic Diagrams

At the end of this block the student shall be able to:

1. Prepare block diagrams of electrical/electronic systems.
2. Prepare logic diagrams and truth tables.

BLOCK 6: Elementary or Schematic Diagrams

At the end of this block the student shall be able to:

1. Prepare electrical/electronic schematic diagrams.

BLOCK 7: Microelectronics (Electronic)

At the end of this block the student shall be able to:

1. Be able to prepare a mask for an integrated circuit.

BLOCK 8: Industrial Controls

At the end of this block the student shall be able to:

1. Prepare elementary and wiring diagrams of industrial control applications.
2. Prepare ladder diagrams and sequence of operation schedules.
3. Prepare logic control diagrams from an elementary diagram.
4. Prepare relay ladder logic diagrams for a programmable controller based control system.
5. Prepare ballon drawings for instrumentation systems.

BLOCK 9: Electrical Power Systems (Electrical)

At the end of this block the student shall be able to:

1. Prepare one-line diagrams.
2. Prepare three-line diagrams.
3. Prepare logic and schematic diagrams.
4. Prepare general arrangement diagrams, and power distribution plans.