

# Basic Electrical Print Reading

3 Days, 2.1 CEUs

An electrical print, schematic or diagram is a map that represents the layout of various types of electrical systems. Knowing how to read these electrical drawings is critical when performing acceptance of new equipment and in troubleshooting existing equipment. There are many types of prints that utilize hundreds of symbols. This course provides instructions and exercises in the proper use of electrical drawings. Equipment application, troubleshooting, and print revision methods to correctly reflect equipment changes will be demonstrated.

Course participants will be shown how to identify symbols and how to unravel this common language for electrical equipment. This course is intended for new or experienced electricians and technicians that install, maintain, repair or troubleshoot power and auxiliary systems. The participant should have basic knowledge of power system components.

## Lab and Classroom Attire

AVO is committed to the personal safety of each participant and requires safety glasses, long pants and ANSI rated "safety-toe" work shoes for lab activities. Lecture courses may involve a tour of a work or shop area and for this reason open-toe shoes and shorts are not considered appropriate attire for the classroom.

## Learning Objectives:

To receive 2.1 CEUs, the participant must attend 3 days of classes (21 contact hours) and attain a minimum average grade of 80% on the final exam. Upon completion of this course and exercises, the participant will demonstrate that they are able to:

- Explain the fundamentals of electrical drawings.
- Demonstrate the application of single-line, elementary, and wiring diagrams.
- Interpret common ANSI symbols used in utility and industrial applications.

## SCOPE

### Day 1\* (7 contact hours)

- I. Introduction (0.5 hr)
  - A. Schedule
  - B. Course Outline
- II. Electrical drawing fundamentals (4 hrs)
  - A. Categories and types of electrical diagrams
  - B. Drawing sizes
  - C. Drawing sections
- III. Single-line diagrams (2.5 hrs)
  - A. Purpose
  - B. Symbols, device number, and abbreviations

### Day 2 (7 contact hours)

- III. Single-line diagrams-cont'd (4 hrs)
  - C. Practical exercise
  - D. Interpretation
- IV. Elementary Diagrams (3 hrs)
  - A. Purpose
  - B. Symbols and abbreviations
  - C. Interpretation
  - D. Practical exercise

### Day 3 (7 contact hours)

- V. Wiring Diagrams (6 hrs)
  - A. Purpose
  - B. Information
  - C. Symbols, abbreviations, and device numbers
  - D. Interpretation
  - E. Practical exercise
- VI. Conclusion (1 hr)
  - A. Review
  - B. Final Exam

\*Class scheduling times may vary based on discussions and size of class

# STANDARD EQUIPMENT LIST

## Electrical Print Reading (ANSI)

Course NO. 234, REV 4

REVISED: 7/6/18

BY: Dean Bartlett/CH

DAYS: 3 DAYS

| TEXT ( PER 1 STUDENT) |                                    |
|-----------------------|------------------------------------|
| QUANTITY              | ITEM                               |
|                       | ELECTRICAL PRINT READING-ANSI      |
|                       | INCLUDES:                          |
|                       | -TEXTBOOK                          |
|                       | -SHRINK-WRAPPED PACKET OF PRINTS   |
| 1                     | -SHRINK-WRAPPED PACKET WITH COURSE |

| MATERIALS NEEDED (PER CLASSROOM) |                                              |
|----------------------------------|----------------------------------------------|
| QUANTITY                         | ITEM                                         |
| *1                               | PROJECTOR OR TV WITH PROJECTION CAPABILITIES |
| *1                               | DRY ERASE BOARD WITH MARKERS AND ERASERS     |
| *10                              | STUDENT TABLES                               |
| *10                              | STUDENT CHAIRS                               |

| EQUIPMENT (PER STUDENT) |                         |
|-------------------------|-------------------------|
| QUANTITY                | ITEM                    |
| 1                       | PLASTIC MAGNIFIER SHEET |
| 1                       | RED PENCIL              |
| 1                       | 12" CLEAR PLASTIC RULER |

FOR VIRTUAL CLASSES:

CONTENT MATERIAL WILL BE PROVIDED IN DIGITAL FORMAT