

EA01A: Basic Electric Circuits

Catalogue Number	88-EA01A-0000
Category	Electrical Maintenance
Duration	15 Hours

Course Introduction and Skill 1: Performing Lockout/Tagout

Course Introduction

Safety in Electrical Maintenance Settings

Lockout/Tagout (LOTO)

LOTO Terms and Concepts

Skill Overview

Skill Drill

Review Quiz

Skill 2: Connecting a Basic Circuit

Basic Electric Circuits

Voltage, Current, and Resistance

Schematic Diagrams and Wiring Diagrams

Introducing the Electrical Panels

Skill Overview

Skill Drill

Review Quiz

Skill 3: Identifying Switches

Controlling Electric Circuits

Electron Flow and Current Flow

Types of Switches

Skill Overview

Skill Drill

Review Quiz

Skill 4: Connecting a Momentary Switch

Momentary Switches

Circuit Example

Skill Overview

Skill Drill

Review Quiz

Skill 5: Connecting a Toggle Switch

Toggle Switches

Circuit Example

Skill Overview

Skill Drill

Review Quiz

Skill 6: Identifying Sources of Electricity

Sources of Electricity

Types of Batteries

Thermocouples

PV Cells

Generators

Measuring Electrical Energy

Skill Overview

Skill Drill

Review Quiz

Skill 7: Measuring DC Voltage

Using a Multimeter

Measuring DC Voltage

Skill Overview

Skill Drill

Review Quiz

Skill 8: Constructing a Series Circuit

- Ohm's Law in Series Circuits
- The Ohm's Law Circle
- Current and Resistance in Series Circuits
- Voltage Drops in Series Circuits
- Calculating Voltage Drop
- The Variable Power Panel and the Lamp Panel
- Skill Overview
- Skill Drill
- Review Quiz

Skill 9: Constructing a Parallel Circuit

- Parallel Circuits
- Ohm's Law in Parallel Circuits
- Calculating Current
- Resistance in Parallel Circuits
- Skill Overview
- Skill Drill
- Review Quiz

Skill 10: Applying DC Voltage Principles

- Voltage and Current in DC Circuits
- Voltages in Parallel Circuits
- Skill Overview
- Skill Drill
- Review Quiz

Skill 11: Testing an Electrolytic Cell

- Ammeters
- Measuring Current
- Measuring DC Current
- Battery Current
- Skill Overview
- Skill Drill
- Review Quiz

Skill 12: Testing a Battery

Load Tests

Measuring DC Voltage During a Load Test

Skill Overview

Skill Drill

Review Quiz

Skill 13: Testing a Thermocouple

Thermocouples in Industry

Measuring Voltage Output of a Thermocouple

Measuring DC Millivolts

Skill Overview

Skill Drill

Review Quiz

Skill 14: Testing a Solar Cell

Renewable Energy

Types of Solar Power

How PV Cells Work

PV Modules in Series

PV Modules in Parallel

Voltage Output of PV Cells

Skill Overview

Skill Drill

Review Quiz

Comprehensive Post-Test