OUTSOURCING
TRAINING & CONSULTING
OTC Training Centre Sdn Bhd

2 DAYS PROGRAM

ELECTRICAL FOR NON-ELECTRICAL PERSONNEL



REGISTER 3 FREE 1 SEAT

Date : 2 & 3 Feb 2027 (Tue & Wed)

Venue : Dorsett Grand Subang Hotel, Selangor

HRD awards 2022 TRAINING PROVIDER

OBJECTIVE:

The objective of an "Electrical for Non-Electrical Personnel" course is to provide individuals without an electrical background with a foundational understanding of basic electrical concepts, components, safety practices, and system operations, enabling them to effectively interact with electrical systems in their work environment, recognize potential hazards, and communicate effectively with qualified electricians.

METHODOLOGY

Similar to all our programs, this course also follows the 'Do-Review-Learn-Apply' model.

- Lectures
- Seminars & Presentations
- Group Discussions
- Assignments
- Case Studies
- And wiring control panel including domestic and motor wireup.

OUTCOME

Upon completing this Electrical Engineering for Non-Electrical Engineers course successfully, participants will be able to:

- Understand the underlying principles of electrical engineering
- Learn some important rudimentary laws of electrical engineering
- Understand 24VDC supply to control panels and understand transformers
- Appreciate the difference between single-phase and three-phase systems
- A basic understanding of electrical systems, enabling them to identify common electrical components, understand basic electrical safety procedures, troubleshoot minor electrical issues, and confidently interpret electrical diagrams within their work environment, all while recognizing when to seek assistance from a qualified electrician for more complex problems.

100% HRDC CLAIMABLE

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COURSE OVERVIEW

INTRODUCTION

This is a typical technical training program , skill focus area is Basic Electrical Engineering. Non-electrical Personnels/Engineers can benefit from having a basic understanding of electrical engineering for several reasons, even if it's not their primary area of expertise. Here are some key reasons why non-electrical engineers should consider gaining some knowledge of electrical engineering:

TARGET GROUP

This Electrical Engineering for Non-Electrical Engineers course would be suitable for:

- All non-electrical Engineers / PERSONNELS
- Individuals interacting with or managing electrical engineers
- Individuals assessing electrical engineering projects
- Energy managers
- Engineering managers
- Plant engineers
- Maintenance Engineers / Technicians
- Facilities Personnels

DURATION

2 Days (9.00am - 5.00pm)

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COURSE CONTENT

MODULE 1. Basic electrical terminology:

- Basic fundamentals of electrical **Fundamental Electrical Concepts:**
- Understand basic electrical quantities such as voltage, current, resistance, and power.
- Grasp Ohm's Law and its implications for electrical circuits.
- Understanding terms like voltage, current, resistance, circuit, phase, and grounding. V=I x R ,v is (volts),I is current(Amperes) and R is resistance (OHMs)
- Equivalent Resistance Formula: The formulas are Req=R 1 +R 2 +… +R n for series and 1/Req = 1/R 1 + 1/R 2 +… + 1/R n for parallel.

Practical calculation using the given formulas- refreshers course

MODULE 2. Component identification:

- **Circuit Analysis:**
- Learn how to analyze simple electrical circuits.
- Explore series and parallel circuits and their properties.
- **Electrical Components and Devices:**
- Familiarize with common electrical components like resistors, capacitors, and inductors.
- Understand the purpose and operation of switches, relays, and transistors.
- Understand AC & DC

Recognizing common electrical components like switches, outlets, fuses, breakers, wires, and basic appliance parts.
Participants will be provided all basic components to see and understand how its works.
Control circuits will be introduced to ha a feel on control wiring required components

MODULE 3. Safety awareness:

Knowing proper safety practices around electricity, including the use of personnel protective equipment (PPE), de-energizing circuits, and recognizing potential hazards
Brief discussion on the types of safety programs for electrical basic fundamental according to the electrical safety acts.

Recognizing the basic electrical safety tools used during an electrical breakdown including LOTO

MODULE 4.Understand the requirements of a 24VDC panel board

Familiarity with simple electrical testing tools like a multimeter to measure voltage and current. Important considerations:
Simple troubleshooting: check for continuity, check for leakages, check for faulty components and loose connection
ON A 24VDC POWER SUPPLY CONTROL BOARD
Ability to diagnose and address minor electrical issues like blown fuses, faulty outlets, or loose connections. **PRACTICAL SESSION 1**

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COURSE CONTENT

MODULE 5. Reading electrical diagrams:

Interpreting basic electrical schematics to understand the flow of electricity in a system.

To draw electrical control wiring diagram based on the following :

1. What types of understanding required to draw an electrical drawing 24vdc
2. Draw an electrical control circuit with the given components.
3. Components understanding will be discussed

Practical 24VDC to complete these direct circuit ,indirect circuit ,holding circuit draw the circuit and wire up the electrical board. PRACTICAL 2

MODULE 6. Reading electrical diagram Single Phase 240VAC

Interpreting basic electrical schematics to understand the flow of electricity in a system.

To draw electrical control wiring diagram based on the following :

1. What types of understanding required to draw an electrical drawing 240vac
2. Draw an electrical control circuit with the given components.
3. Components understanding will be discussed

Practical 240VAC PRACTICAL 3 DRAW A SINGLE PHASE ELECTRICAL MOTOR CONTROL CIRCUIT. DIRECT ON LINE AND STAR DELTA

Motor wire up.

MODULE 7. Reading electrical diagram Three Phase 415VAC

Interpreting basic electrical schematics to understand the flow of electricity in a system.

To draw electrical control wiring diagram based on the following :

1. What types of understanding required to draw an electrical drawing 415v
2. Draw an electrical control circuit with the given components.
3. Components understanding will be discussed

Practical 415 VAC PRACTICAL 4 JUST DRAW A 3 PHASE MOTOR WIRING DIAGRAM AND EXPLAIN

Motor wire up.

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COURSE CONTENT

MODULE 8. Wiring Practices:

Familiarization with single-phase and three-phase power systems, electrical distribution panels, and grounding principles.

Reading Electrical Diagrams:

Interpreting basic electrical schematics and wiring diagrams.

Troubleshooting Basics:

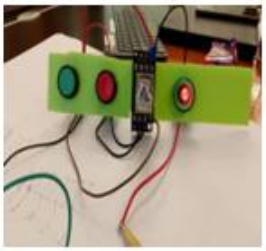
Identifying common electrical issues and performing basic troubleshooting steps.

Wiring and Connections:

- Gain knowledge of wiring techniques, connectors, and terminations.
- Understand the basics of electrical distribution systems.
- **Electric Machines and Motors**:
- Learn about electric motors, their types, and applications.
- Understand the principles of electromagnetism and motor operation.
- **Basic Power Systems**:
- Explore single-phase and three-phase power systems.
- Understand the concept of power factor and its importance.

THEORY PRACTICAL ON TROUBLE SHOOTING CASE STUDY WILL BE PROVDED ,FIND And SOLVE THE PROBLEM BY PROVIDING THE POSSIBLE CAUSES.- DISCUSSION AND PRESENTATION

Practical session 24VDC



Trouble shooting



Testing and finding loose connection



Wiring 1sg phase



Motor wiring up



Trouble shooting

