



هندسة الكهرباء وتحكم نظام الطاقة: دليل البحث عن الكلمات الرئيسية

Duration: 5 Days

Language: ar

Course Code: IND04-109

Objective

Upon completion of this course, participants will be able to:

- Understand the purpose of protection systems for power networks and assets.
 - Analyse and reconfigure systems.
 - Minimise outages and loss of supply.
 - Reduce risk to critical equipment.
- Understand how to utilise protection systems to protect power assets.
 - Identify and conduct fault calculations.
- Review the safety requirements for power protection networks.
 - Build personal confidence in protecting power networks.

Audience

This course is designed for anyone responsible for developing protection or maintaining power systems for an organisation. It would be most beneficial for:

- Electrical Engineers
 - Electrical Engineer Technicians
- Health and Safety Officers (HSOs)

- Engineer Managers
 - Risk Assessors
- Electrical Engineer Supervisors
 - Security Consultants
 - Project Managers

Training Methodology

This course uses a variety of adult learning styles to aid full understanding and comprehension. Participants will observe practical demonstrations highlighting the types of power systems and what protection they would likely need to provide a full and comprehensive understanding of the subject.

Participants will be provided with all the necessary tools and equipment they may require. They will have the opportunity to practice the skills learned through this course. They will be able to practice fault calculations, and types of network protections, and review health and safety requirements. Having a safe environment to align knowledge with physical actions will guarantee they will be able to understand the techniques and methods learned truly.

Summary

Electrical engineering is a highly respected profession due to the complex knowledge and skill an individual must possess to conduct the job safely and accurately, especially when it comes to power system control.

Power system control is incredibly important. Power systems require a constant close eye to ensure they are working as effectively as possible and that there are no faults within the system. An unprotected power system can be detrimental to an organisation. It cannot only halt business functions but also have a widespread impact on people and other businesses, with the risk of causing great harm.

With the modern advancements in energy sources, including various renewable energy, managing power systems has become more challenging than ever. An electrical engineer needs to be highly competent in the infrastructure of power systems, their characteristics, and their specific functions.

A protection system should be in place to ensure power systems continue to work correctly. Power protection systems are installed and maintained to catch faults when or if they occur. They block the fault and contain it before it can cause greater damage. An engineer qualified and skilled in this area of electrical engineering will then be required to investigate the fault to prevent further issues thoroughly.

Course Content & Outline

Section 1: Role of Protection

- The principles and concepts of power protection.
- Health and Safety Regulations and organisation safety standards.
 - Contribution to network design.
- Consequences of not protecting power systems.

Section 2: Types of Network Protection

- Understand how LV systems and LV fuses work.
- Understand how HV systems and HV fuses work.
 - Review the principles of LV and HV systems.
- Examine busbar protection within a power network.
- Define the characteristics of different power networks.

Section 3: Grading

- Evaluate the purpose of grading.
 - Identify the different methods of grading.
 - Current and Time grading.
 - Grading fuses.
- Inverse Definite Minimum Time (IDMT) and Dependent Time Overcurrent (DMT).

Section 4: Fault Calculations

- Assess why fault calculations are necessary.
 - Review Fault Level and why it is essential.
- Types of network faults and how to identify them.
 - Reducing the network to minimise fault impact.
- How to calculate fault levels with fault currents.
 - Introduction to symmetrical components.
- Consequences of unbalanced fault calculations.

Section 5: Protecting Networks

- Principles of radial feeder protection.
- What networks is Radial Feeder Protection designed for?
- Principles of Transformer and Transformer feeder protection.

- Transformer fault types and characteristics.
- What networks is Transformer and Transformer feeder protection designed for?
 - Protection of non-radial networks.

Certificate Description

Holistique Training. عند إتمام هذه الدورة التدريبية بنجاح، سيحصل المشاركون على شهادة إتمام التدريب من (e-Certificate) وبالنسبة للذين يحضرون ويكملون الدورة التدريبية عبر الإنترنت، سيتم تزويدهم بشهادة إلكترونية من Holistique Training.

وخدمة اعتماد التطوير المهني (BAC) معتمدة من المجلس البريطاني للتقييم Holistique Training شهادات ISO 29993 أو ISO 21001 أو ISO 9001 كما أنها معتمدة وفق معايير (CPD) المستمر

لهذه الدورة من خلال شهادتنا، وستظهر هذه النقاط على شهادة إتمام (CPD) يتم منح نقاط التطوير المهني المستمر واحدة عن كل ساعة CPD يتم منح نقطة CPD، ووفقاً لمعايير خدمة اعتماد Holistique Training. التدريب من لأي دورة واحدة نقدمها حالياً CPD حضور في الدورة. ويمكن المطالبة بحد أقصى قدره 50 نقطة

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