Training - Electrical Maintenance for Industrial Plants

ELECMAI-EN-P | **Face-to-face only** | **5 days**

This course provides a better understanding of electrical equipment such as generators, motors and power grids. It includes performances, operation, maintenance, hazards and safety

Level

Skilled

Public

Electrical technicians, supervisors and inspectors, operation and maintenance staff as well as reliability engineers

Objectives

Attendees will be able to implement the following skills:

- Understand a plant grid and its structure
- Master electrical equipment including motor operating principles
- Detect the main disturbances and failures related to electrical motors
- List the main maintenance procedures on these types of equipment
- Understand the roles of the safety parts

Pedagogical & technical resources

- Drawings and datasheets used in the industrial plants
- Practical exercises and case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CHARACTERISTICS OF PLANT ELECTRICAL DISTRIBUTION — 0.5 day

Purpose of electrical distribution, characteristics of the grid. One line electrical diagram.
Main grid, auxiliary grid, safety grid. Application to a typical grid.

SUBSTATION EQUIPMENT & WORKING PRINCIPLE OF SWITCHGEAR - MAINTENANCE — 2 days

Purposes and uses of equipment, as well as its first level maintenance.

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Operation and technical characteristics.
Transformers: purpose of transformer on a power grid; operating principle, single phase to tri phases; windings connection and protections. Preventive maintenance.
Circuit breakers: operating principle, technologies, main failures.
Cables, switchboards, equipment, relays, diesel generators, batteries, chargers and UPS. Equipment monitoring.
Gas insulated substation: principle and technology.

SAFETY EQUIPMENT & RELIABILITY — 1 day

Main types of protections. Earthing system choice LV&HV: advantages and drawbacks.
Selectivity of protections: mains techniques. Protection relays. Insulation monitoring.
Hazardous area (ATEX) equipment: standards and maintenance rules.
LockOut - Tag-Out procedures (LOTO).

INDUCTION & SYNCHRONOUS MOTORS — 1 day

Operation and technical characteristics (intensity, efficiency, power factor and torque).
Field of use of power and voltage range HV & LV. Technology and hazardous area (ATEX).
Variable speed drive, type of drives; consequences on the grid. Electrical protection of motors.
Synchronous motors: torque control, excitation, different technologies.
Induction motors: various types of starting according to the mechanical load and power of the motor. Constraints from the grid; maximal numbers of launches. Applications and case studies.

STEAM TURBINES GENERATORS — 0.5 day

Main parameters of the steam turbine generator. Technology and operation of the electrical generator.
Isolated mode and coupling of the generator: impact on the grid.
Application: maintenance case studies.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com

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