



**Energy, Electrical Engineering**



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# Course: Electric Power Distribution System For Industrial Plants

Code	City	hotel	Start	End	price	Hours
577	Zurich (Switzerland)	Hotel Meeting Room	2024-04-15	2024-04-19	5450 €	25

## Introduction

Electric power distribution system plays an important role in the efficient operation of a modern industrial plant. Such a system includes high voltage circuit breakers, switchgear, transformers, motor control centers, electric motors, variable speed drives, etc. A trouble-free electrical system is essential for an interruption-free plant operation. This course will cover all aspects of power distribution, including system planning, equipment selection and application, system grounding, protection and conformity with electrical code requirements, etc. Participants will work under instructor guidance to develop a power distribution system single line diagram for a typical industrial plant.

## Objectives

- Plan your system and select equipment for it.
- Benefit from a clear understanding of all aspects of power distribution system
- Apply the Electrical Code to your projects
- Deal with the important issues such as load estimating, voltage selection, shortage circuit studies and power protection
- make your distribution system more efficient by applying your new knowledge of the power distribution system and equipment

## Outlines

### System Planning As Applicable To Industrial Plants

- Load estimates
- Voltage considerations and flicker
- Distribution types
- Substation bus arrangements
- Review of a conceptual single line diagram

### Short Circuit Studies For Equipment Rating And Relaying

- Applicable standards



- Method of calculations
- System and equipment data
- An example using hand calculations

#### **Load Flow Calculations**

- Importance of load flow
- Voltage drop considerations
- Voltage instability
- Loss of a source
- Effect of current limiting reactors
- Optimization of load flow

#### **System Neutral Grounding**

- Ungrounded
- High resistance
- Low resistance
- Solidly grounded systems
- Cable insulation and system grounding
- Generator neutral grounding

#### **Review Of Major Equipment**

- Motor control centers, switchgear, power transformers
- Application of power cables
- Application of electric motors
- Surge arresters
- Harmonics in power systems and impact of non-linear loads
- Capacitor applications
- Instrument transformers

#### **Workshop - Development Of Single Line Diagrams**

##### **Protective Devices And Relay Setting**

- Protection and co-ordination principles
- Feeder and bus protection
- Protection of medium voltage motors
- Transformer protection
- Generator protection
- Relay settings and co-ordination curves



**The Scandinavian Academy employs modern methods in training and skills development, enhancing the efficiency of human resource development. We follow these practices:**

- **Theoretical Lectures:**
  - We deliver knowledge through advanced presentations such as PowerPoint and visual materials, including videos and short films.
- **Scientific Assessment:**
  - We evaluate trainees skills before and after the course to ensure their progress.
- **Brainstorming and Interaction:**
  - We encourage active participation through brainstorming sessions and applying concepts through role play.
- **Practical Cases:**
  - We provide practical cases that align with the scientific content and the participants specific needs.
- **Examinations:**
  - Tests are conducted at the end of the program to assess knowledge retention.
- **Educational Materials:**
  - We provide both printed and digital scientific and practical materials to participants.
- **Attendance and Final Result Reports:**
  - We prepare detailed attendance reports for participants and offer a comprehensive program evaluation.
- **Professionals and Experts:**
  - The programs scientific content is prepared by the best professors and trainers in various fields.
- **Professional Completion Certificate:**
  - Participants receive a professional completion certificate issued by the Scandinavian Academy for Training and Development in the Kingdom of Sweden, with the option for international authentication.
- **Program Timings:**
  - Training programs are held from 10:00 AM to 2:00 PM and include buffet sessions for light meals during lectures.