



EE016: Electrical Distribution System for Industrial Plants

Training Description:

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 intensive training 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 an electrical distribution system single line diagram for a typical industrial plant.

Training Objectives:

By the end of the training, participants will be able to:

- ✓ 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

Training Designed for:

This course is intended for Maintenance Engineers and supervisors, Project & Facilities Engineers, Operations & Maintenance Engineers, Supervisors & Technicians, Instrumentation or Controls Engineers, Electrical Foremen and Technicians and in general, Inspection, Materials, Safety, and Maintenance Electrical Engineering Team.

Training Requirement:

"Hand's on practical sessions, equipment and software will be applied during the course if required and as per the client's request."

Contents can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client's learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

DAY ONE:

- ❖ Introduction
- ❖ 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

DAY TWO:

❖ Short Circuit Studies for Equipment Rating and Relaying

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

DAY THREE:

❖ 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

DAY FOUR:

❖ 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

❖ Development of Single Line Diagrams

DAY FIVE:

❖ 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

- ❖ Course Conclusion
- ❖ POST-ASSESSMENT and EVALUATION

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

CMCT Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

TBA as per the course location - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:00	Recess (Prayer Break & Lunch)
13:00 - 14:00	Last Session

For training registrations or in-house enquiries, please contact:

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Training & Career Development Department