



EE203

Power Capacitors Applications Switching Problems Protection & Maintenance

Course Introduction:

Understanding of state-of-the-art power factor improvement equipment, namely power capacitors, is a prerequisite to assuring economical operation of electrical power systems.

This course provides a thorough review of application of power capacitors and capacitor banks. It covers fundamentals and theory regarding power capacitors and power factor correction, methods of calculation, specifying, controlling, protecting, installing, operating and maintaining power capacitors and capacitor banks. It includes detailed analysis of the capacitor application in electrical motor circuits and distribution systems.

This course brings participants up to date on the application of capacitors and capacitor banks, answers questions, and gives participants hands-on experience in assessing and solving typical case studies.

Course Objectives:

Upon successful completion of this course, the delegates will be able to:

- Analyze the power distribution system in order to determine the need for improvement of power factor
- Calculate energy cost savings associated with the installation of capacitor bank
- Gain the knowledge to be able to specify the size and configuration of capacitor bank and associated auxiliary equipment to suit your specific needs

Who Should Attend?

This course is valuable for Electrical Engineers, Technologists and technicians, Technical personnel from industrial users, power utilities industry, and municipal utilities. Consulting engineering firms and manufacturers of electrical equipment who are involved with the design, installation, operation and maintenance of electrical power distribution systems. Plant Managers, project engineers, and all personnel involved in the planning, recommending, selling and purchasing electrical distribution systems equipment. This course is a must for people involved in electrical power systems that use capacitors in an industrial plant setting, on distribution feeders and in distribution networks.

Course Outline:

Day 1:

- Basic Electrical Ideas and units on Capacitors and Power Factor.
- Resistance circuit, Inductance circuit, Capacitive circuit
- True, Reactive, and Apparent Power
- Description and basic operation of capacitors
- Calculation on capacitor circuits

Day 2:

- Applications of capacitors
- Theoretical fundamentals for Power Factor
- Causes and effects of poor Power Factor
- Means of Power Factor improvement or Reactive Power compensation

Day 3:

- Principle of Reactive Power compensation
- Installation of Power Factor correction capacitors
- Calculation for Power Factor Improvement
- Power Capacitor banks
- Application of Capacitor banks

Day 4:

- Capacitor connections
- Capacitor switching operation
- Impact of Capacitors on Power Quality
- Maintenance, Inspection and Repair on Capacitor bank installation

Day 5:

- Tests for Power Capacitors
- Related international standards IEEE/IEC
- Typical checklist for general servicing and maintenance on Capacitors
- Different Voltage Regulation Techniques

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures
- Case Studies and Self Questionnaires
- Group Work
- Discussion
- Presentation

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Course Fees:

To be advised as per the course location. This rate includes participant's manual, and-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Timings:

Daily Course Timings:

08:00 - 08:20 Morning Coffee / Tea

08:20 - 10:00	First Session
10:00 - 10:20	Coffee / Tea / Snacks
10:20 - 12:20	Second Session
12:20 - 13:30	Lunch Break & Prayer Break
13:30 - 15:00	Last Session

