

Hands-On

# Electrical Circuit Breakers

Maintenance Training



## Course Description

This electrical circuit breakers maintenance training course will discuss application, installation, maintenance and testing issues related to low, medium and high-voltage switchgear and electrical circuit breaker equipment. The course will provide delegates with a solid understanding of Circuit Breaker and switchgear theory and standards. The course will also make delegates aware of issues concerning the proper application, installation and maintenance of circuit breaker equipment with a strong emphasis on safety. The course will cover a wide range of material starting from the basics and moving on to more complex issues.

This electrical circuit breakers course also provides an overview of power system design and theory, focusing on the power distribution electrical circuit breakers used in common utility, industrial, commercial and institutional applications. Basic electrical circuit breaker construction, electrical safety, and common circuit breaker maintenance techniques are the major components of this course.

When brought on-site, this course can be supplemented by an in-depth study of the specific circuit breaker models used at the client's facility. Hands-on training is provided wherever practical.

## Students Will Learn

- **Gain solid and practical understanding of electrical Circuit breaker and switchgear design and operation is vital to its safe and reliable application.**
- **Low and Medium voltage circuit breaker**
- **Switchgear equipment used in common industrial, commercial and utility applications**
- **Operation theory**
- **Oil Breakers**
- **Gas Blast and Gas Puffer breakers**
- **Vacuum Breakers**
- **Air Breakers**
- **Air /Magnetic Breakers**
- **Maintenance**
- **DC Operation, (Control and Monitoring circuits)**
- **And More.**

## Target Audience

This course is recommended for skilled trades, supervisors, and anyone involved in the maintenance of industrial power

circuit breakers.

## Prerequisites

Basic electricity

## Course Outline

### Module I:

- Switchgear, Theory and Applications
- Switchgear and Circuit Breaker control Drawings
- Switchgear Ratings
- Short Circuit Current Estimation
- Low-Voltage Circuit Breaker Overview
- Purpose and application
- Electrical Circuit breaker construction
- Electrical Circuit breaker operation
- Electrical Circuit breaker control
- Modern LV Trip Units
- Low-Voltage Circuit Breaker Maintenance
- Adjustments
- Troubleshooting and repair
- Hands-on testing and inspections
- Personnel and equipment safety

### Module II:

- MV Electrical Circuit Breakers Overview
- Purpose/application
- Electrical Circuit breaker construction
- Electrical Circuit breaker operation
- Electrical Circuit breaker control
- Personnel and equipment safety factors
- MV Electrical Circuit Breaker Maintenance
- General Circuit breaker maintenance
- Inspection and testing
- Maintenance intervals
- Troubleshooting and repair
- Hands-on testing and inspections
- Grounding
- Principles of grounding
- Grounding procedures
- Ground and test device
- Ground Fault Protection

- Switchgear Maintenance
- Standards -- Standards Organizations, Certification Marks and Applicable

## **Delivery Method**

Instructor-Led with numerous exercises and Case-Studies.

## **Equipment Requirements**

**(This apply's to our hands-on courses only)**

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

## **Course Length**

2 Days