



## **LOW VOLTAGE POWER CIRCUIT BREAKERS MAINTENANCE**

The installation, application and maintenance of low voltage power circuit breakers is both challenging and interesting. Using the information presented during this course, you will develop an understanding of the construction, operation and testing of your breakers.

Anyone who works on or near power generation, transmission, or distribution systems should attend this course. Additionally, supervisors, managers, safety personnel, and those responsible for ensuring a safe work environment should attend this course.

### **INTRODUCTION**

Purpose  
Presentation Methods  
Course Scope

### **TYPES OF CIRCUIT BREAKERS**

Low Current Molded Case Circuit Breakers  
Molded Case Power Circuit Breakers  
Insulated Case Circuit Breakers  
Air Frame Circuit Breakers  
Current-Limiting Circuit Breakers  
DC Circuit Breakers

### **NAMEPLATE DATA AND RATINGS**

Voltage Nomenclature  
Current Nomenclature  
Miscellaneous Nomenclature  
Trip Unit Nomenclature  
Selection of Ratings

### **CIRCUIT BREAKER COMPONENTS**

Frame  
Circuit Breaker Contacts  
Arc Chutes  
Trip Units  
Interlocks  
Shunt Trip  
Undervoltage Release Devices  
Operating Mechanism  
Charging Motor  
Current Sensors

### **DRAWOUT MECHANISM OPERATION**

Circuit Breaker Positions  
Maintenance Accessories  
Installation And Removal

### **TRIP CURVES**

Electro-Mechanical Trip Curves  
Solid State Trip Units  
I<sup>2</sup>T Function

### **TRIP UNITS**

Mechanical Operation  
Electro-Mechanical  
Solid State  
Targets

### **SCHEMATICS**

Single Line Diagram  
Three Line Diagram  
Block Diagram  
Interconnect Wiring Diagram  
Schematics And Control Diagrams

### **SAFETY**

Electric Shock  
Current Path  
Rescuing a Shock Victim  
Electric Arc / Blast  
Prevention of Hazards From Arc / Blast  
Personal Protective Equipment  
Qualified and Unqualified Persons  
Lockout / Tagout Procedures  
Procedural Requirements  
Verification of De-Energization

### **TESTING**

Acceptance Tests (Performance Tests)  
NETA "Acceptance Testing Specifications"  
Maintenance Test Specifications  
Sample Test Methods

### **CONCLUSION**