

Utility Substation Maintenance

This five day program is designed for power electricians responsible for Utility company electrical systems. The successful student will gain a solid understanding of HV equipment and systems with skills that can be immediately implemented upon course completion.

Dynamic and highly concentrated, this course places maximum emphasis on preventive maintenance and troubleshooting skills.

INSULATION

Objective: Describe the properties of good insulation

SUBTOPICS:

- Insulation characteristics and stresses
- Insulation testing
- Maintenance of electrical insulation

CABLES

Objective: Describe the design of high voltage cables

SUBTOPICS:

- Design and types
- Cable insulation
- Splicing and Terminations
- Testing

SWITCHGEAR

Objective: Identify various types of switchgear

SUBTOPICS:

- Types
- Operation
- Testing and Troubleshooting
- Preventive Maintenance

DISCONNECTS

Objective: Describe the function of disconnects

SUBTOPICS:

- Application
- Types
- Operation
- Testing and Troubleshooting

- Preventive Maintenance

POWER TRANSFORMERS

Objective: Describe the function and operation of transformers

SUBTOPICS:

- Application
- Types
- Operation
- Testing and Troubleshooting
- Corrective Maintenance
- Preventive Maintenance

INSTRUMENT TRANSFORMERS

Objective: Describe VT operation and application

SUBTOPICS:

- Voltage Transformers
- Current Transformers

FUSES

Objective: Explain the function of fuses

SUBTOPICS:

- Application
- Types
- Selection
- Testing

BREAKERS

Objective: Describe circuit breaker operation

SUBTOPICS:

- Application
- Types
- Operation
- Testing and Troubleshooting
- Preventive Maintenance

RELAYS

Objective: Define the principles and operation of protective relays

SUBTOPICS:

- Application
- Types
- Operation
- Testing and Troubleshooting
- Preventive Maintenance

STARTERS

Objective: Explain the operation of high voltage starters

SUBTOPICS:

- Application
- Types
- Operation
- Testing and Troubleshooting
- Preventive Maintenance

MOTORS

Objective: Explain the operation of high voltage motors

SUBTOPICS:

- Application
- Types
- Operation
- Testing and Troubleshooting
- Preventive Maintenance

GENERATORS

Objective: Explain the operation of high voltage generators

SUBTOPICS:

- Application
- Types
- Operation
- Testing and Troubleshooting
- Preventive Maintenance

GROUNDING

Objective: Describe the principles and methods of grounding for stations, substations, equipment and lightning protection

SUBTOPICS:

- Application
- Methods
- Ground Grid Resistivity
- Ground Resistance Testing
- Maintenance
- Safety Grounding

SYSTEM SAFETY

Objective: Describe shock, blast and arc hazards

SUBTOPICS:

- Work clearance
- Isolation and permits
- Interlocks (ie: Kirk Key)
- High voltage protective gear
- Testing and grounding
- Limits of approach
- Electrical rescue

SWITCHING

Objective: Explain the use of single line diagrams for safety and switching

SUBTOPICS:

- Work clearance
- Isolation and permits
- Switching procedures
- Interlocks (ie: Kirk Key)
- Testing and grounding
- High voltage protective gear
- Limits of approach
- Electrical rescue