



Electrical Safety Training Course Outline

32 Hr Course

I. Introduction / Hazards of Electricity

- A. Course Overview/Outline
- B. Class Schedule
- C. Electrical Shock
- D. Electrical Arc Flash
- E. Electrical Arc Blast

II. Electrical Codes and Safety Regulations and Standards

- A. NFPA/NEC/NFPA 70E OSHA
- B. Overview of the Regulations and Standards
- C. General use of NEC Code
- D. Recent Changes to NEC Code

III. Working on Utility and Industrial Power Systems

- A. Overview of Electrical Power Systems
- B. Training Requirements for Qualified Workers
- C. Safe Work Requirements
- D. Electrical Hazard Risk Assessment Considerations
- E. Regulatory Requirements for Energized Work

IV. Deenergized Work for Utilities

- A. Regulatory Requirements
- B. One-Line Diagrams
- C. Locking and Tagging
- D. Clearance Procedures
- E. Verification of Deenergization

V. Medical First Responder Training

- A. Contact Release
- B. First Aid/CPR/AED Use

VI. Grounding

- A. Purpose of Grounding Systems
- B. Substation Grounding Systems
- B. Grounding Methods for Electric Supply
- C. Ground Testing

VII. Personal Protective Grounding

- A. Regulatory Requirements for Grounding
- B. Purpose of Protective Grounds
- C. Sizing of Protective Grounds
- D. Effects of Current and PPE Grounding

- E. Grounding Equipment
- F. Personal Protective Ground Jumper Testing
- H. Application of Protective Grounds
- I. Induced Voltages and Currents on Deenergized Circuits and Equipment
- j. Equipment Grounding for Tag out (Generator, Transformers, etc)

VIII. Electrical Personal Protective Equipment

- A. Protective Techniques
- B. Electrical Shock Protective Equipment
- C. Arc Flash Protective Equipment
- D. Arc Blast Protective Equipment
- E. Other Protective Equipment
- F. Energy Detection/Test Equipment

IX. Specialized Equipment

- A. Batteries and Battery Rooms
- B. Hazardous Area Classification and Equipment
- C. Power Electronics, VFD's SCR's, Capacitors,
- D. Installation requirements and special considerations

X. Arc Flash

- A. Arc Flash Reduction Methods
- B. NEC Circuit Protection Sizing and Arc Flash
- C. Arc Flash Calculations – Software
- D. Arc Flash Calculations – Standard Tables (NFPA 70E)

XI. Conclusion

- A. Course Review
- B. Final Testing (if Needed)