

High Voltage UPS and R&D Qualified Electrical Worker

Info Sheet

Course Information

Course Length - 2 days / 16 hours

Course Description - This instructor-led course combines high-voltage UPS safety and qualified electrical worker practices for research and development environments. Participants evaluate electrical and stored-energy hazards and select controls for high-voltage batteries, power conversion equipment, capacitors, supercapacitors, and solid-state transformers.

The course draws on NFPA 70E safe work practices and high-voltage safety principles. Equipment-focused discussion and task scenarios connect hazard evaluation, work planning, isolation, protective equipment, and safe testing to UPS and R&D applications.

Who Should Attend - Engineers, researchers, technicians, electricians, maintenance personnel, supervisors, and safety professionals who design, assemble, test, operate, maintain, or plan work around high-voltage UPS and R&D equipment.

Training Scope - Training supports task-specific qualification. Employers determine and document each worker's qualifications and authorization for assigned equipment and work.

References

NFPA 70E; OSHA 29 CFR 1910 Subpart S; 29 CFR 1910.269 and NESC where applicable; manufacturer instructions and employer electrical safety procedures.

Terminal Objective

Given a high-voltage UPS or R&D task scenario, evaluate electrical and stored-energy hazards and select appropriate work practices, protective equipment, and risk controls using applicable requirements and equipment-specific procedures.

Topics Covered

- Recognize shock, arc flash, unexpected energization, and stored-energy hazards in high-voltage AC and DC systems.
- Evaluate battery hazards at cell, module, and system levels, including chemical and fire hazards.
- Explain capacitor and supercapacitor charging, discharging, residual-energy hazards, and safe-work considerations.
- Identify hazards in UPS systems, power conversion equipment, and solid-state transformers.
- Apply task risk assessment, job briefings, approach boundaries, and controls for changing R&D configurations.
- Evaluate design improvements for safer research and service, such as mid-pack fusing, battery sectionalization, built-in absence-of-voltage testing, and engineered test ports.
- Select appropriate PPE, tools, and test instruments for the evaluated exposure.
- Describe isolation, lockout/tagout, absence-of-voltage verification, and grounding or discharge considerations for an electrically safe work condition.

Safety through training and performance

For additional information or quote for service: