



Storage Battery Theory and Application Training

Course information sheet

Course duration 4 hours

Course overview

This four-hour instructor-led course introduces storage battery construction, operation, and safe work planning. Lead-acid systems provide the primary foundation; nickel-cadmium and lithium-ion systems are compared for their distinct characteristics, hazards, and maintenance considerations. Participants examine charging and discharging, battery banks, electrical and chemical exposures, DC arc flash characteristics, maintenance, and risk assessment.

Who should attend

Apprentices, electricians, maintenance technicians, supervisors, managers, planners, engineers, procurement personnel, and others involved in battery installation, maintenance, replacement, design, oversight, or work planning.

Learning outcomes

- Explain lead-acid battery construction, operation, charging, discharge, and specific gravity.
- Compare nickel-cadmium and lithium-ion systems with lead-acid batteries, including distinct benefits and hazards.
- Recognize shock, arc flash, chemical, thermal, and stored-energy hazards in battery systems.
- Identify the unique characteristics of DC arc flash in battery systems and discuss how they affect hazard assessment and work planning.
- Identify inspection and maintenance considerations for battery banks and the information needed before work begins.
- Use a representative battery work scenario to assess hazards and select controls, work practices, and protective equipment appropriate to the task.

Topics covered

Battery fundamentals and chemistry; lead-acid construction and specific gravity; charging and discharging; nickel-cadmium and lithium-ion comparisons; battery banks; inspection and maintenance; shock, DC arc flash, chemical and thermal hazards; protective equipment; risk assessment and safe work planning.

Format and references

Instructor-led discussion, demonstrations, and scenarios. References include applicable OSHA requirements, manufacturer instructions, employer procedures, and current editions of NFPA 70E, NFPA 70B, and NFPA 70 where applicable.

Course completion supports awareness and planning. Employers determine task-specific qualification, procedures, and authorization. Continuing education credit availability is confirmed for each class and jurisdiction.

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