MERCURY

Electrical Safety/Arc Flash

28 February – 4 March 2027
Sharm El-Sheikh (Egypt)



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Ref: 16310_1015189 **Date:** 28 February – 4 March 2027 **Location:** Sharm El-Sheikh (Egypt) **Fees:** 4500 Euro

Introduction:

Electrical systems are essential in every industrial and commercial environment, but they also pose significant risks if not managed properly. One of the most severe dangers is arc flash, which can result in catastrophic injuries, equipment damage, and costly downtime. This Electrical Safety/Arc Flash course provides participants with the theoretical knowledge necessary to understand, assess, and manage arc flash and other electrical safety hazards in the workplace. It emphasizes best practices, compliance with international standards, and proactive prevention methods.

By engaging with this Electrical Safety/Arc Flash program, learners will enhance their ability to analyze electrical risks, establish protective measures, and ensure regulatory compliance. It also explores the human factors that contribute to accidents, highlighting the importance of awareness, procedures, and training. Ultimately, it prepares participants to build safer work environments while reducing risks and maintaining operational continuity.

Targeted Groups:

This Electrical Safety/Arc Flash training course targets professionals seeking specialized knowledge and skills:

- Electrical engineers working in power generation and distribution.
- Maintenance supervisors are responsible for electrical safety compliance.
- Safety officers ensure the prevention of workplace electrical hazards.
- Plant managers oversee industrial electrical operations.
- Technicians performing electrical installations and repairs.
- Project managers handling electrical system implementation.
- Health and safety consultants are conducting risk assessments.
- Facility managers ensure safe building operations.
- Contractors working in high-voltage environments.
- Team leaders are responsible for enforcing electrical safety protocols and ensuring compliance with these protocols.

Targeted Competencies:

Participants will gain the following competencies during the Electrical Safety/Arc Flash program:

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- Ability to recognize and assess arc flash hazards.
- Skills in applying electrical safety standards effectively.
- Competence in risk assessment and hazard analysis.
- Proficiency in planning safe electrical work procedures.
- Capability to select and use PPE correctly.
- Knowledge of emergency planning and incident response.
- Decision-making in hazardous electrical situations.
- Communication of safety policies to teams.
- Practical competence in compliance documentation.

Course Objectives:

Participants will achieve the following objectives by completing the Electrical Safety/Arc Flash course:

- Understand electrical hazards and identify potential arc flash risks.
- Apply methods to calculate arc flash boundaries and protection levels.
- Interpret regulatory standards and compliance requirements for workplace electrical safety.
- Evaluate workplace conditions and recommend suitable protective measures.
- Develop clear procedures for lockout/tagout in high-risk environments.
- Analyze case studies to recognize failures in electrical safety practices.
- Select appropriate personal protective equipment PPE for different scenarios.
- Apply hazard communication techniques to enhance team awareness and understanding.
- Design preventive strategies to minimize electrical and arc flash accidents.
- Implement structured training methods for staff safety awareness.
- Assess emergency response procedures in case of electrical incidents.
- Apply documentation and reporting standards for compliance purposes.
- Improve decision-making under hazardous electrical conditions.
- Develop action plans for continuous electrical safety improvements.

Studying Scenarios:

In this Electrical Safety/Arc Flash training, participants will develop their skills through the analysis of the following scenarios:

- Assessing arc flash risks in a high-voltage substation.
- Investigating causes of a workplace electrical fire.
- Applying PPE standards to live maintenance activities.
- Reviewing non-compliance incidents during audits.
- Designing lockout/tagout plans for plant equipment.
- Responding to arc flash incidents with emergency protocols.
- Identifying electrical hazards during facility inspections.
- Analyzing human error in electrical accident case studies.
- Establishing protective boundaries in energized environments.
- Communicating safety practices in cross-functional teams.

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Course Content:

Unit 1: Fundamentals of Electrical Safety:

- Introduction to electrical hazards in industrial settings.
- Understanding arc flash phenomena and causes.
- Classification of electrical risks in the workplace.
- The Importance of Electrical Safety Awareness and Prevention.
- National and international standards governing electrical safety.
- Role of training in accident prevention.
- Legal responsibilities of organizations and employees.
- Electrical safety terminology and definitions.

Unit 2: Arc Flash Hazards and Risk Assessment:

- Nature of arc flash and its potential impact.
- Factors influencing arc flash incidents.
- Methods to calculate arc flash boundaries.
- Understanding incident energy levels and their consequences.
- Arc flash risk assessment methodologies.
- Interpreting labels and safety documentation.
- Identifying vulnerable areas in electrical systems.
- Integrating hazard assessment into daily operations.
- Best Practices for Reducing Arc Flash Risks.

Unit 3: Safety Standards, Procedures, and Compliance:

- International standards NFPA 70E, OSHA, IEC.
- Establishing an electrical safety program.
- Roles and responsibilities in compliance management.
- Implementing lockout/tagout procedures.
- Verification of isolation and safe grounding methods.
- Arc flash protective boundaries and safe distances.
- Creating documentation and reporting systems.
- Common compliance gaps and how to avoid them.

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Unit 4: Personal Protective Equipment and Safety Tools:

- Categories of PPE for electrical and arc flash hazards.
- Standards for protective clothing and equipment.
- Proper selection of gloves, helmets, and face shields is essential.
- Maintenance and inspection of protective equipment.
- Electrical Safety Tools and Their Proper Use.
- Importance of fit, comfort, and durability in PPE.
- Safe storage and replacement schedules.
- Case examples of PPE failure and lessons learned.

Unit 5: Emergency Preparedness and Incident Response:

- Steps to Take During an Electrical Emergency.
- Emergency Response Planning for Arc Flash Accidents.
- Roles of first responders and safety officers.
- Communication strategies during electrical incidents.
- Medical Considerations for Arc Flash Burns and Injuries.
- Post-incident analysis and reporting.
- Developing continuous improvement plans.
- Creating a Culture of Electrical Safety in Organizations.
- Integrating lessons learned into future prevention strategies.

Final Insights & Key Takeaways:

This course equips participants with essential knowledge to identify, assess, and mitigate electrical and arc flash hazards effectively. By mastering standards, risk assessments, and protective measures, participants will contribute to creating safer workplaces and mitigating operational risks. The program emphasizes both theoretical understanding and real-world application to prepare professionals for high-risk environments. Ultimately, learners will leave with practical strategies to strengthen workplace safety and ensure regulatory compliance.