Advanced Arc Flash Hazard Analysis and Mitigation Course

3 – 7 October 2027
Johannesburg

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Ref: 976_174366 **Date:** 3 – 7 October 2027 **Location:** Johannesburg **Fees:** 6000 Euro

Overview

Advanced Arc Flash Hazard Analysis and Mitigation Course is a one-week course for electrical and safety professionals who need an Arc-Flash Study Basis and Mitigation File. Participants connect arc flash hazard analysis, system data, short-circuit current, protective-device clearing time, incident energy, arc-flash boundary, equipment information, and mitigation decisions. The course resolves gaps between model inputs and defensible study findings through traceable assumptions, calculation cases, and review checks. Agile Leaders Training Center delivers this arc-flash analysis course.

Who Should Attend

- Teams responsible for electrical system studies and equipment data quality
- Functions responsible for electrical risk assessment and safe-work planning
- Personnel responsible for protective-device models, settings, and clearing-time evidence
- Maintenance groups responsible for equipment condition, labels, and study updates
- Technical reviewers responsible for mitigation recommendations and study acceptance

The course assumes participants interpret single-line diagrams, short-circuit results, and protective-device information at work, while it leaves out basic electrical theory and certification preparation.

Departments and Industries

The course applies arc-flash studies across organizations with energized electrical equipment and formal engineering controls.

- Electrical engineering and maintenance in industrial plants and process facilities
- Power-system planning and technical safety in utilities and generation
- Facilities engineering in healthcare, transport, and data centers
- Project design and commissioning in construction and infrastructure
- Risk, assurance, and owner-engineering functions

Learning Objectives

By the end of this course, participants will be able to:

- Build a traceable arc-flash study scope and data register
- Analyze short-circuit and protective-device clearing-time inputs
- Apply IEEE 1584 calculation-study logic to defined cases
- Evaluate incident-energy results, boundaries, and equipment information
- Compare engineering and administrative mitigation options
- Prioritize study findings through an auditable decision file

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Course Agenda

Day 1: Study Scope and Electrical Data

- Arc-Flash Study Scope and Deliverable Matrix
- Single-Line Diagram Boundary and Equipment Inventory
- System Operating Configuration and Scenario Register
- Conductor, Transformer, Source, and Equipment Data Sheet
- Field Data Validation and Assumption-Control Checklist

Day 2: Fault Current and Clearing Time

- Available Short-Circuit Current Input Map
- Protective-Device Model and Setting Verification Sheet
- Time-Current Curve and Clearing-Time Evaluation Method
- Working Distance and Equipment Configuration Record
- Study Case Selection and Sensitivity Matrix

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Day 3: Incident Energy Calculation Study

- IEEE 1584 Arc-Flash Calculation Model Basis
- Arcing-Current and Variation Case Worksheet
- Incident-Energy and Arc-Flash Boundary Calculation
- Electrode Configuration and Enclosure Data Check
- Calculation Output Quality-Control Log

Day 4: Results, Equipment Information and Mitigation

- Incident-Energy Result Interpretation Dashboard
- Equipment Information and Label-Data Schedule
- Engineering Control and Clearing-Time Option Matrix
- Operating Mode and Work-Planning Control Register
- Mitigation Priority and Residual-Risk Decision Record

Day 5: Study Review Practice and Capstone

- Exercise on Scope, Inventory, and Data-Gap Review
- Exercise on Fault Current and Clearing-Time Inputs
- Exercise on Incident-Energy Case Interpretation
- Exercise on Mitigation Option and Update Decisions
- Capstone Exercise: Arc-Flash Study Basis and Mitigation File

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Practical Exercises

The course uses suggested activities that turn system information and calculation outputs into traceable study decisions.

- Suggested activity: audit a single-line diagram and equipment inventory for missing study inputs
- Suggested activity: compare protective-device clearing times across operating cases
- Suggested activity: interpret incident-energy results and test mitigation alternatives
- Suggested activity: present a study file linking assumptions, findings, equipment information, and actions

FAQs

Who suits advanced arc flash hazard analysis and mitigation, and what does it assume?

Electrical and safety professionals who interpret system diagrams, fault results, and protective-device data suit the course. It assumes working power-system knowledge and leaves introductory theory and certification preparation outside scope.

How does arc flash hazard analysis differ from general electrical safety training?

Arc flash hazard analysis develops a calculation study from system and protective-device data. General electrical safety training focuses more broadly on safe work practices, roles, procedures, and protective measures without requiring the same study modelling and result review.

Why does protective-device clearing time matter in arc flash analysis?

Protective-device clearing time affects how long thermal energy is released during an arcing event. Study teams therefore verify device models, settings, time-current behavior, and operating cases before relying on incident-energy results.

What makes arc flash incident-energy results defensible?

Defensible results come from controlled source data, validated equipment configurations, suitable calculation models, documented assumptions, traceable case selection, and quality checks. Reviewers must be able to reproduce the path from input to finding.

When should an arc flash study be updated?

An arc flash study should be reviewed when relevant system data, equipment, protective settings, operating configurations, or work conditions change. The organization uses its change-control and review process to decide whether recalculation is required.

Conclusion

Participants take back an Arc-Flash Study Basis and Mitigation File containing scope, data controls, calculation cases, results, equipment information, review checks, and prioritized actions. The file changes disconnected study inputs into an auditable decision record. Teams can update it as the electrical system changes and use it to govern mitigation work.