Electrical Safety Training for Manufacturing

Service Objectives

- Build demonstrable competence in shock and arc-flash risk assessment for machine-centric and line-based operations.
- Execute reliable LOTO on single- and multi-source machinery, including verification and residual energy control.
- Plan isolations that minimise production impact and integrate with Permit-to-Work (PTW) routines.
- Apply test-before-touch and safe energised diagnostics; prove instruments and verify absence of voltage.
- Interpret arc-flash labels and boundaries; select PPE appropriate to hazard and task.
- Align with UAE expectations (OSHAD, Dubai Municipality, Civil Defence, MOHRE) and leading standards (NFPA 70E, IEC 60364, IEC 60204-1, IEC 61482).

Who This Service Is For

- In-house electricians, E&I technicians, controls/automation and reliability engineers.
- Maintenance, production, and facilities supervisors authorising PTW and energisation steps.
- Mechanical/process technicians and operators working around conveyors, robotics, heated equipment, and automated cells.
- Contractor supervisors and project teams during installation, commissioning, shutdowns/turnarounds.
- HSE managers and compliance officers overseeing LOTO audits, PTW governance, and regulatory inspections.
- Manufacturing contexts: food & beverage packaging, metal fabrication/CNC, plastics extrusion/injection, cement and glass with MV distribution, pharmaceutical/consumer goods.

> Expected outcomes: fewer near misses in MCC rooms, consistent LOTO on multi-source machinery, controlled arc-flash exposure, cleaner PTW sign-offs, and audit-ready documentation.

Duration & Process Overview

- Tracks: Awareness (4–6 hours), Practitioner (1–2 days), Authorized Person – site-specific (1 day), Refresher (3–4 hours).
- Delivery: classroom plus demonstrations, hands-on practicals, and shopfloor walkdowns where permitted; blended with pre-work microlearning.
- Scheduling: aligned to shifts and production windows; English delivery with Arabic/Hindi/Urdu support available.
- Group sizes: Practitioner 10–12 per trainer; Awareness up to 20; digital materials, checklists, and LOTO templates provided.

Methodology

Phase	Objective	Deliverable / Duration
Pre-course diagnostic & site scoping	Gather one-lines, MCC schedules, machine manuals, and LOTO procedures; align on hazards and shift patterns.	Needs analysis summary; tailored plan (pre-work + delivery windows).
Foundations: hazards, boundaries, PPE	Differentiate shock vs. arc-flash, read labels, apply approach limits and task-based PPE per standards.	Classroom session with label/Boundary exercises.
LOTO for complex machinery	Isolate multi-source equipment (mains, control, VFD DC bus, pneumatics/hydraulics); verify zero energy; group lockout.	LOTO step cards and verification checklists; practical drills.
Energised diagnostics & test-before-touch	Establish safe work areas; prove instruments; confirm absence of voltage on control/power circuits.	Supervised instrument proving and measurement exercises.
Contractor interface & PTW integration	Embed isolation plans into PTW; define roles, sign-offs, temporary power and pre-energisation checks.	PTW-aligned isolation templates and coordination flows.
Assessment & certification	Formative checks, practical demonstrations (LOTO, proving dead), final written assessment.	NPM Certificate of Completion; competence evidence pack.

Pre-course diagnostic & site scoping

- Collect site documents and align content to machines, MCCs, and shift realities.

Foundations: hazards, boundaries, PPE

- Arc energy context for UAE LV systems; read labels; select PPE by exposure category.

LOTO for complex machinery

- Multiple feeds, residual energy, group lockout, and safe restoration sequencing.

Energised diagnostics & test-before-touch

- Prove instruments on known sources; verify absence of voltage; document steps.

Contractor interface & PTW integration

- Clear roles and sign-offs; coordinate temporary power and pre-energisation checks.

Assessment & certification

- Observed practicals plus final test; NPM certificate confirms training completion.