Process Safety Management Training for Petrochemical Plants

Service Objectives

Applied, site-ready competence for teams operating high-hazard petrochemical units.

- Prevent, detect, and mitigate loss-of-control events across cracking, polymerisation, aromatics, utilities, and tank farm operations.
- Translate PSI and P&IDs into safe operating envelopes, alarm setpoints, and control room discipline.
- Participate effectively in PHAs/HAZOPs; strengthen MOC for temporary and permanent changes, including robust PSSR.
- Drive procedural rigour, shift handover quality, and control of overrides/bypasses.
- Reinforce mechanical integrity for pressure systems, rotating equipment, relief devices, and SIS proof-testing.
- Lead evidence-based incident investigations and report meaningful API 754 Tier metrics.

> Practical and standards-aligned: classroom plus site-specific case studies and exercises; aligned with IEC 61511, ISO 45001, OSHA 1910.119, API 754 and UAE authority expectations (e.g., OSHAD, Dubai Municipality, UAE Civil Defence). Materials in English; Arabic facilitation available on request.

Who This Service Is For

Designed for UAE petrochemical organisations handling flammable, toxic, or reactive chemicals at scale.

- Sites and complexes: ethylene crackers, olefins and aromatics units, polymerisation lines, utilities, tank farms, and loading terminals.
- Roles: HSE managers, plant managers, process/operations engineers, instrument & control technicians, maintenance planners/inspectors.
- Contractor supervisors for hot work, confined space entry, lifting; emergency response coordinators; laboratory teams.
- HSSEQ leads responsible for incident investigations and KPI reporting (API 754 Tier 1–4).
- Multi-plant operators/industrial parks seeking consistent MOC, PSSR, and permit controls across dispersed operations.
- Organisations aligning with IEC 61511, ISO 45001, and OSHA 1910.119 benchmarks in petrochemical contexts.

Duration & Process Overview

- Standard delivery: 2–3 days (14–20 contact hours); optional advanced day for engineers/HSE on HAZOP leadership, LOPA, and SIS lifecycle touchpoints.

- Flexible scheduling: split sessions across shifts or half-day blocks; hybrid model (live virtual theory + on-site practicals).
- Class size: typically 10–18 delegates; breakout groups aligned to unit teams.
- Pre-training coordination for unit access (practicals, PSSR walkdowns, isolation planning) while maintaining control room coverage.

Methodology

Structured modules, exercises, and assessments tailored to petrochemical operating realities.

Phase	Objective	Duration / Deliverable
Pre-training Scoping & Customisation	Needs analysis; collect procedures, anonymised incidents, permits, P&IDs; align content to units.	Customised materials and scenarios
PSM Fundamentals & Petrochemical Hazards	Barrier thinking, LOPA overview, ignition control, polymerisation/runaway prevention.	2–3 hours
Process Safety Information & Operating Limits	Read PFDs/P&IDs; define safe limits; alarm setpoint rationale; control room discipline.	3 hours
PHA/HAZOP Participation	Node selection; scenario building; safeguards; action quality; revalidation triggers.	4 hours
Management of Change & PSSR	Temporary vs permanent changes; approvals; risk assessments; reinstatement checks.	3 hours
Operating Procedures & Shift Handover	Write clear steps for normal/upset/start-up/shutdown; logbooks; control of overrides.	2 hours
Mechanical Integrity & Relief Systems	Critical equipment lists; inspection/testing; failure modes; PSV basics; SIS proof-testing.	3–4 hours
Contractor Management & PTW	Hot work, CSE, lifting; isolations/LOTO; SIMOPS; toolbox talks; supervision.	3 hours
Incident Investigation & Learning	Evidence collection; root cause methods; API 754 metrics; communicating learnings.	2–3 hours
Emergency Preparedness & Drills	Alarm response; evacuation; coordination with Civil Defence and mutual aid.	2 hours
Auditing & Continuous Improvement	Self-assessments; action tracking; management review inputs; KPI selection.	2 hours
Assessment & Certification	Pre-course diagnostic; scenario-based practicals; written assessment; results communication.	NPM Certificate + aggregate results summary

> Expected outcomes observed by petrochemical sites: tighter control of overrides, stronger MOC/PSSR, higher permit quality and isolation accuracy, improved integrity compliance, and clearer API 754 reporting to management.