مركز المستشار الوطني للتدريب
National Consultant Centre For Training
YOUR GATE TO HANDS-ON TRAINING

5-Day Cement Industry Training Course
In

PROCESS PLANT STARTUP, TROUBLESHOOTING AND COMMISSIONING IN THE CEMENT INDUSTRY

Abu Dhabi - UAE, 11 – 15 May 2026

COURSE LEVEL: ADVANCED

COURSE OVERVIEW:

The transition of a cement plant from a static construction site to a dynamic production facility requires a rigorous and multi-disciplinary approach to commissioning and startup. This course defines the strategic phases of pre-commissioning, cold commissioning, and hot commissioning that ensure equipment performs to design specifications. It serves as a masterclass in operational readiness, focusing on the safe and systematic activation of complex industrial systems.

The scope of this training involves the technical management of the kiln, mills, and auxiliary systems during their most vulnerable operational phase. It covers the logic of interlock testing, the tuning of control loops, and the establishment of baseline performance data for future optimization. Furthermore, the course addresses the psychological and safety aspects of leading a startup team through the high-pressure environment of a plant launch or a major restart.

Coverage includes detailed modules on troubleshooting process instabilities, managing emergency shutdowns, and conducting performance guarantee tests. Participants will explore the specific challenges of kiln heating curves, mill loading sequences, and the synchronization of material handling circuits. Through the analysis of real-world commissioning failures and successes, attendees will gain the diagnostic skills necessary to identify and rectify bottlenecks in the manufacturing chain.

COURSE OBJECTIVES:

After completion of this course, the participants will be able to:

- Develop a comprehensive commissioning and startup plan for a cement plant.
- Differentiate between cold and hot commissioning requirements.
- Verify the integrity of electrical and mechanical interlocks.
- Execute a safe and efficient kiln heating-up schedule.
- Coordinate the first feed of raw materials into the grinding systems.
- Troubleshoot complex process deviations using DCS trend analysis.
- Optimize control loop PID settings for stable operation.
- Manage the transition from manual to automated plant control.
- Conduct Performance Guarantee Tests (PGT) for major equipment.
- Identify and resolve mechanical vibrations during the initial run.
- Implement emergency response protocols for startup incidents.
- Document the commissioning process for handover to operations.

TARGET AUDIENCE:

This course is intended for Commissioning Engineers, Project Managers, Plant Managers, Lead Process Operators, and Maintenance Leads.

TRAINING COURSE METHODOLOGY:

A highly interactive combination of lectures, discussion sessions, and case studies will be employed to maximize the transfer of information, knowledge, and experience. The course will be intensive, practical, and highly interactive. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. The attendants will also be encouraged to raise more of their questions and to share in developing the right answers using their analysis and experience. There will also be some indoor experiential activities to enhance the learning experience. Course material will be provided in PowerPoint, with necessary animations, learning videos, and general discussions.

The course participants shall be evaluated before, during, and at the end of the course.

COURSE CERTIFICATE:

National Consultant Centre for Training LLC (NCC) will issue an Attendance Certificate to all participants completing a minimum of 80% of the total attendance time requirement.

COURSE OUTLINE / COURSE CONTENT:

MODULE 1: PRE-COMMISSIONING AND MECHANICAL COMPLETION

- Definition of "Walk-down" and Punch-list management.
- Verification of equipment installation against P&IDs.
- Cleaning and flushing of lubrication and hydraulic lines.
- Motor rotation checks and coupling alignment.
- Instrumentation calibration and signal loop testing.

MODULE 2: COLD COMMISSIONING PROCEDURES

- Dry running of conveyors and bucket elevators.
- Testing of silo extraction and material flow gates.
- Fan performance testing and damper characterization.
- Simulation of DCS interlocks and safety trips.
- Bag filter pulse-jet testing and air leak detection.

MODULE 3: CONTROL SYSTEM TUNING AND HMI VALIDATION

- Verification of alarm setpoints and priority levels.
- Tuning of PID loops for pressure, flow, and temperature.
- Validation of mimic diagrams and operator interfaces.
- Testing of sequential start-stop logic for process lines.
- Integration of field sensors with the central control room.

MODULE 4: KILN SYSTEM HOT COMMISSIONING

- Refractory drying and heating-up curve management.
- Auxiliary drive operation and main drive transition.
- Burner ignition and flame stabilization protocols.
- Managing the first clinker production and cooler bed.
- Stabilizing the preheater tower and calciner.

MODULE 5: RAW MILL AND CEMENT MILL STARTUP

- Initial ball charge loading and mill internal inspection.
- Starting the mill under "No-Load" and "Full-Load" conditions.
- Managing the recirculating load and separator settings.
- Cooling water and lubrication system stabilization.
- Achieving design fineness and throughput targets.

MODULE 6: TROUBLESHOOTING PROCESS INSTABILITIES

- Root cause analysis of kiln "flushing" and "snowmen."
- Diagnosing mill vibrations and high pressure drops.
- Managing gas analyzer errors and combustion issues.
- Troubleshooting material blockages in cyclones and chutes.
- Analyzing power fluctuations and drive trips.

MODULE 7: AUXILIARY SYSTEMS COMMISSIONING

- Compressed air system balancing and leak testing.
- Water treatment and cooling tower startup.
- Coal mill safety systems and inertization protocols.
- Packing plant and palletizer automation testing.
- Alternative fuel feeding system synchronization.

MODULE 8: EMERGENCY SHUTDOWN AND RECOVERY

- Safe protocols for "Total Plant Blackout" scenarios.
- Managing kiln "roll-back" and drive failures.
- Emergency refractory protection during sudden stops.
- Rapid troubleshooting and restart decision-making.
- Communication protocols during critical incidents.

MODULE 9: PERFORMANCE GUARANTEE TESTING (PGT)

- Establishing the criteria for PGT success.
- Conducting steady-state runs at design capacity.
- Measuring specific heat and power consumption.
- Emissions monitoring and environmental compliance.
- Final documentation and project handover.

MODULE 10: SAFETY AND PROJECT MANAGEMENT IN STARTUP

- Managing the "Simultaneous Operations" (SIMOPS) risks.
- Lock-out Tag-out (LOTO) procedures during commissioning.

- Training of the operations team for handover.
- Post-commissioning review and lessons learned.
- Continuous improvement strategies for plant ramp-up.