5-Day Cement Industry Training Course
In

EQUIPMENT OPERATION IN CEMENT PLANT (SITE VISIT)

Cairo - Egypt, 16 – 20 Nov. 2026

COURSE LEVEL: INTERMEDIATE

COURSE OVERVIEW:

The transition from understanding equipment function to mastering equipment operation is a critical step for technical personnel. This course defines the operational protocols, control parameters, and safety interlocks required to run a cement plant's major assets efficiently and safely. By focusing on the "How-To" of daily operations, participants will learn how to stabilize the process and respond to deviations in real-time.

The scope of this training includes the start-up and shut-down sequences for mills, kilns, and conveyors, as well as the management of local control panels and DCS interfaces. It covers the monitoring of bearing temperatures, vibration levels, and motor loads to ensure equipment longevity. Furthermore, the course addresses the operational trade-offs between production throughput and equipment wear, emphasizing the importance of "Total Productive Maintenance" (TPM).

Coverage includes detailed modules on troubleshooting common operational faults, managing "interlock" trips, and conducting effective field inspections. Through a practical site visit, participants will observe senior operators managing equipment from both the field and the control room, providing a comprehensive view of operational responsibility. Attendees will gain the confidence and technical competence required to take an active role in the operation of complex industrial systems.

COURSE OBJECTIVES:

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

- Operate local control panels for conveyors, feeders, and auxiliary fans.
- Execute the standard start-up and shut-down sequences for process lines.
- Monitor critical operational parameters such as pressure, temperature, and flow.
- Interpret alarm messages and differentiate between "Critical" and "Warning" states.
- Conduct professional field inspections using standardized checklists.
- Understand the logic of electrical and process safety interlocks.
- Adjust equipment settings (e.g., feeder speeds) to maintain process stability.
- Troubleshoot common operational issues like belt mistracking and filter clogging.
- Manage the lubrication schedules and cooling systems for rotating machinery.
- Perform safe "Lockout Tagout" (LOTO) as part of operational preparation.
- Coordinate with the Central Control Room during process transitions.

- Document operational logs and shift handover reports accurately.

TARGET AUDIENCE:

This course is intended for Plant Operators, Field Technicians, Shift Leads, Maintenance Personnel, and Production Engineers.

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: THE OPERATOR'S ROLE AND RESPONSIBILITIES

- Ethics of operation: Safety, Quality, and Environment.
- The relationship between Field Operators and the CCR.
- Understanding the Distributed Control System (DCS) interface.
- Standard Operating Procedures (SOPs) and their importance.
- Introduction to the "Interlock" philosophy in cement plants.

MODULE 2: OPERATING CONVEYING AND FEEDING SYSTEMS

- Starting and stopping belt conveyors: Tensioning and sequence.
- Operating weigh-feeders and calibration basics.
- Managing bucket elevators: Handling "overload" conditions.
- Operation of air slides and rotary feeders.
- Troubleshooting material blockages and belt mistracking.

MODULE 3: RAW MILL OPERATIONAL PARAMETERS

- Controlling the VRM: Grinding pressure and table speed.
- Managing mill "Vibration" and "Water Injection."
- Adjusting the classifier speed for fineness control.
- Operating the mill fan and managing circuit pressure.
- Start-up logic: Heating the mill and material feeding.

MODULE 4: PREHEATER AND CALCINER OPERATION

- Monitoring cyclone pressures and detecting build-ups.
- Operating air cannons and acoustic cleaners.
- Managing the calciner burner and fuel dosing.
- Field checks for riser duct and meal pipe temperatures.
- Responding to preheater blockages and "flushing" events.

MODULE 5: KILN OPERATION: THE FIELD PERSPECTIVE

- Monitoring kiln drive torque and auxiliary motor operation.
- Operating the kiln shell cooling fans.
- Managing the kiln inlet and outlet seals.
- Visual inspection of the "Burning Zone" and coating.
- Emergency procedures for kiln "Roll-Back" and power failure.

MODULE 6: CLINKER COOLER OPERATIONAL CONTROL

- Operating grate cooler drives and hydraulic systems.
- Managing the "Bed Depth" and "Under-Grate" pressures.
- Operation of the clinker breaker (Crusher).
- Handling "Red River" and clinker "Snowman" formations.
- Adjusting cooling fans for optimal heat recovery.

MODULE 7: CEMENT MILL AND SEPARATOR OPERATION

- Ball Mill operation: Managing the "Electronic Ear" and mill load.
- Operating the separator: Balancing fineness and throughput.
- Managing grinding aids and water spray systems.
- Cooling the cement: Operating the vertical cement cooler.
- Start-up sequence for a closed-circuit grinding system.

MODULE 8: DUST COLLECTOR AND FAN OPERATION

- Operating bag filters: Pulse-jet cleaning and differential pressure.
- Managing the ESP: High-voltage control and rapping systems.
- Operation of large process fans: Dampers vs. VFD control.
- Monitoring fan bearing temperatures and vibrations.
- Handling "High-Dust" alarms and emission excursions.

MODULE 9: LUBRICATION AND COOLING SYSTEM OPERATION

- Operating centralized lubrication systems for mills and kilns.
- Monitoring oil flow, pressure, and temperature.
- Operation of cooling towers and heat exchangers.
- Identifying "Hot Bearings" and taking corrective action.
- Safe handling and storage of lubricants in the field.

MODULE 10: SAFETY SYSTEMS AND INTERLOCKS

- Testing Emergency Stop (E-Stop) buttons and pull cords.

- Understanding the "Process Interlock" vs. "Safety Interlock."
- Operating gas detection systems for CO and NOx.
- Fire suppression systems in electrical and fuel areas.
- Standard procedures for "Lockout Tagout" during operation.

MODULE 11: SITE VISIT: PRACTICAL OPERATIONAL REVIEW

- Hands-on walk-through of local control stations.
- Observing a "Shift Handover" and operational briefing.
- Demonstration of a field inspection using a mobile checklist.
- Viewing the reaction of the CCR to a simulated field trip.
- Inspecting lubrication units and fan stations in real-time.

MODULE 12: OPERATIONAL ASSESSMENT AND CONCLUSION

- Troubleshooting workshop: Solving operational scenarios.
- Final exam on equipment operation and safety.
- Group discussion on operational best practices.
- Feedback and course evaluation.