5-Day Cement Industry Training Course
In

CEMENT INDUSTRY KEY PERFORMANCE INDICATORS (KPI'S) IMPLEMENTATION AND MANAGEMENT

Cairo - Egypt, 12 – 16 Jan. 2026

COURSE LEVEL: ADVANCED

COURSE OVERVIEW:

The implementation and management of Key Performance Indicators (KPIs) are fundamental to driving operational excellence and financial profitability in a cement plant. This course defines the metrics required to measure efficiency across production, maintenance, quality, and environmental sectors. It establishes a data-driven framework for transforming raw plant data into actionable management intelligence.

The scope of this training involves the selection of specific KPIs such as Specific Heat Consumption, Mean Time Between Failures (MTBF), and Overall Equipment Effectiveness (OEE). It covers the methodology for setting realistic benchmarks, the integration of KPIs into the plant's Digital Control System (DCS), and the use of "Dashboards" for real-time monitoring. Furthermore, the course addresses the human element of KPI management, focusing on how to align departmental goals with the overall corporate strategy.

Coverage includes detailed modules on energy efficiency metrics, quality consistency indices, and safety performance tracking. Participants will explore the "Balanced Scorecard" approach and the importance of "Leading" vs. "Lagging" indicators. Through the study of statistical analysis and performance auditing, attendees will gain the expertise to identify operational bottlenecks and lead continuous improvement initiatives that enhance the plant's competitive position.

COURSE OBJECTIVES:

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

- Define and categorize KPIs for all major cement plant departments.
- Calculate "Overall Equipment Effectiveness" (OEE) for kiln and mill lines.
- Monitor "Specific Heat Consumption" (kcal/kg clinker) as an efficiency metric.
- Analyze "Specific Power Consumption" (kWh/ton) for cement grinding.
- Implement maintenance KPIs: MTBF, MTTR, and Reliability rates.
- Set quality KPIs based on "Standard Deviation" and "Cpk" indices.
- Use "Environmental KPIs" to track emissions and water usage.
- Develop "Visual Dashboards" for effective performance communication.
- Link plant-level KPIs to "Financial Profit and Loss" (P&L) statements.

- Apply the "Balanced Scorecard" methodology to plant management.
- Conduct "Performance Gap Analysis" and develop "Action Plans."
- Utilize KPIs to motivate and reward staff through performance-based systems.

TARGET AUDIENCE:

This course is intended for Plant Managers, Department Heads, Production Engineers, Maintenance Planners, and Financial Controllers.

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: INTRODUCTION TO KPI'S IN THE CEMENT SECTOR

- Definition and purpose of Key Performance Indicators.
- Characteristics of a "SMART" KPI (Specific, Measurable, Achievable, Relevant, Timely).
- Hierarchy of metrics: From Corporate to Shop-floor.
- Benchmarking against global cement industry standards.
- The role of "Data Integrity" in performance measurement.

MODULE 2: PRODUCTION AND OPERATIONAL EFFICIENCY KPI'S

- Calculating "Plant Availability" and "Utilization Factor."
- Monitoring "Kiln Feed Rate" and "Clinker-to-Cement Ratio."
- Understanding "Shutdown Frequency" and "Unplanned Downtime."
- Measuring "Packing Plant" efficiency and palletizing rates.
- Impact of "Operational Reliability" on the production budget.

MODULE 3: ENERGY AND THERMAL PERFORMANCE METRICS

- Tracking "Specific Heat Consumption" for the clinker process.
- Analyzing "Specific Power Consumption" for raw and cement mills.
- Monitoring "Fuel Substitution Rates" (Alternative Fuels).

- Efficiency of "Waste Heat Recovery" (WHR) systems.
- Managing "False Air" percentages as an energy KPI.

MODULE 4: MAINTENANCE AND ASSET RELIABILITY KPI'S

- Mean Time Between Failures (MTBF) and Mean Time To Repair (MTTR).
- Tracking "Planned vs. Unplanned" Maintenance Man-hours.
- "Maintenance Cost per Ton" of cement produced.
- Monitoring "Spare Parts Inventory Turnover" and availability.
- Predictive maintenance compliance rates (Vibration, Oil analysis).

MODULE 5: QUALITY CONSISTENCY AND COMPLIANCE KPI'S

- Tracking the "Standard Deviation" of LSF and C3S.
- Measuring "Process Capability Index" (Cpk) for strength targets.
- Monitoring "Product Rejection" and "Customer Complaints."
- Laboratory "Testing Frequency" and turnaround time.
- Percentage of "First-Time Right" clinker production.

MODULE 6: SAFETY AND HEALTH PERFORMANCE INDICATORS

- Lagging Indicators: Lost Time Injury Frequency Rate (LTIFR).
- Leading Indicators: "Safety Observations" and "Near-Miss" reporting.
- "Safety Training Man-hours" per employee.
- Compliance with "Permit to Work" (PTW) and LOTO audits.
- Monitoring Occupational Health check-up completion.

MODULE 7: ENVIRONMENTAL AND SUSTAINABILITY KPI'S

- Tracking CO2 emissions per ton of cementitious product.
- Monitoring Stack Emissions: NOx, SOx, and Dust (mg/Nm3).
- "Water Consumption" per ton and recycling rates.
- Measuring "Alternative Raw Material" utilization.
- Compliance with local environmental regulatory audits.

MODULE 8: DATA COLLECTION, ANALYSIS, AND DASHBOARDS

- Integrating DCS and SAP/ERP data for KPI reporting.
- The role of "LIMS" in quality data automation.
- Design principles for "Executive Dashboards."
- Using "Traffic Light" systems (Red/Amber/Green) for alerts.
- Statistical tools for trend analysis and forecasting.

MODULE 9: THE BALANCED SCORECARD AND STRATEGIC ALIGNMENT

- Four Perspectives: Financial, Customer, Internal Process, and Growth.
- Creating "Strategy Maps" for the cement plant.
- Cascading KPIs to individual employee performance appraisals.
- Managing "Conflicting KPIs" (e.g., Production Volume vs. Maintenance Cost).
- Role of the "Monthly Performance Review" (MPR) meeting.

MODULE 10: CONTINUOUS IMPROVEMENT AND CHANGE MANAGEMENT

- Using KPIs to trigger "Root Cause Analysis" (RCA).
- Linking performance data to "Lean" and "Six Sigma" projects.
- "Change Management": Overcoming resistance to KPI monitoring.
- Celebrating success and rewarding "Top Performance."
- Final course assessment and KPI implementation workshop.