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

5-Day Cement Industry Training Course
In

RAW MATERIAL OPERATION HANDLING (SITE VISIT)

Cairo - Egypt, 22 – 26 June 2026

COURSE LEVEL: BASIC

COURSE OVERVIEW:

Raw material operation and handling is the critical first stage of cement production, involving the movement of vast quantities of minerals from the quarry to the plant. This course defines the technical processes of crushing, transport, and storage that prepare the raw components for the grinding process. It provides a foundational understanding of how massive earth-moving operations are transformed into a controlled industrial feed.

The scope of this training encompasses the physical machinery used in material handling, including primary crushers, long-distance belt conveyors, and stacking systems. It covers the basic principles of material flow and the importance of preventing contamination during storage. Furthermore, the course addresses the vital safety protocols required when working with heavy-duty mobile equipment and rotating machinery in a high-dust environment.

Coverage includes a guided tour of the primary crusher station, the conveyor galleries, and the pre-blending yard. Participants will explore the mechanical components of the handling system and the role of the weigh-feeders in ensuring a precise mix. Through the study of moisture control and dust mitigation, attendees will gain an appreciation for the environmental and operational challenges of managing bulk materials at an industrial scale.

COURSE OBJECTIVES:

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

- Describe the flow of raw materials from the quarry to the raw mill.
- Identify the main types of crushers and their functions.
- Understand the operation and safety of belt conveyor systems.
- Explain the purpose of a "Pre-blending Yard" (Stacker/Reclaimer).
- Recognize the different raw materials: Limestone, Clay, and Silica.
- Identify the common safety hazards in material handling areas.
- Describe the role of dust filters at conveyor transfer points.
- Understand how "Weigh-feeders" control the material flow rate.
- Explain the importance of "Metal Detectors" and "Magnetic Separators."
- Identify the basic maintenance needs of conveyor idlers and belts.
- Understand the impact of moisture on material handling efficiency.
- Describe the visual characteristics of different raw materials.

TARGET AUDIENCE:

This course is intended for New Operators, Logistics Trainees, Safety Officers, and Administrative Staff.

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 RAW MATERIALS

- Overview of the cement manufacturing flowchart.
- Identifying the "Primary Materials": Limestone and Clay.
- Introduction to "Corrective Materials": Iron ore and Sand.
- Basic chemical properties needed for cement (Calcium, Silica, Iron).
- Safety induction for the quarry and handling areas.

MODULE 2: CRUSHING TECHNOLOGY AND OPERATION

- Function of the primary crusher in the quarry.
- Types of crushers: Jaw, Gyratory, and Impact.
- Understanding "Closed-circuit" vs. "Open-circuit" crushing.
- Managing the size of the crushed material (Product size).
- Safety hazards around crushing and vibrating screens.

MODULE 3: BELT CONVEYOR SYSTEMS (SITE VISIT)

- Basic components of a conveyor: Belts, rollers, and motors.
- How materials are moved over long distances.
- Safety devices on conveyors: Pull cords and stop switches.
- Visual inspection of belt alignment and tension.
- Identifying "Nip Points" and the importance of guarding.

MODULE 4: PRE-BLENDING AND STORAGE YARDS

- Why do we use a Stacker and Reclaimer?
- Stacking methods: Cone-shell and Chevcon.
- Role of the blending yard in chemical consistency.
- Operation of the bucket-wheel or bridge reclaimer.
- Managing the storage inventory of different materials.

MODULE 5: MATERIAL TRANSPORT AUXILIARIES

- Role of magnetic separators in removing scrap metal.
- Operation of vibrating feeders and grizzly screens.
- Identifying the "Transfer Points" and their challenges.
- Purpose of "Skirt Boards" and "Scrapers" in cleanliness.
- Inspecting for material spillage and buildup.

MODULE 6: FEEDING AND WEIGHING FUNDAMENTALS

- Introduction to the "Raw Mill Feed Bins."
- How weigh-feeders measure the flow of solids.
- Understanding the concept of "Tons Per Hour" (TPH).
- Communication between the feeders and the control room.
- Importance of calibration for feeding accuracy.

MODULE 7: DUST MITIGATION AND ENVIRONMENT

- Sources of dust in material handling operations.
- Operation of bag filters at conveyor discharges.
- Role of "Water Sprays" and "Dust Suppression" systems.
- Managing the "Spillage" to maintain a clean workplace.
- Environmental impact of uncontained material handling.

MODULE 8: MOBILE EQUIPMENT IN HANDLING

- Role of Wheel Loaders and Dump Trucks in the plant.
- Safe interaction between pedestrians and mobile machinery.
- Basic maintenance checks for mobile equipment.
- Managing fuel and tires in a heavy-duty environment.
- Safety zones and traffic management plans.

MODULE 9: OPERATIONAL SAFETY AND HOUSEKEEPING

- Personal Protective Equipment (PPE) for dusty areas.
- Identifying the risks of "Falling Objects" near conveyors.
- "Lock-out Tag-out" (LOTO) basics for maintenance.
- Importance of high-standard housekeeping for safety.
- Emergency response procedures for conveyor incidents.

MODULE 10: SITE VISIT REVIEW AND CONCLUSION

- Walk-through of the main handling route (Crusher to Silo).
- Discussion of the observations made during the visit.
- Final quiz on material handling and safety.

- Summary of the day's learning objectives.
- Awarding of certificates and closing remarks.