Road Materials and Construction Technology Course

1 – 5 November 2027
Addis Ababa

AGILE LEADERS
Training Center

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Ref: 556_223774 **Date:** 1 – 5 November 2027 **Location:** Addis Ababa **Fees:** 6000 Euro

Overview

Road Materials and Construction Technology Course is a one-week intermediate course for highway, civil, materials, laboratory, supervision, inspection, contracting, consulting, quality, and project teams who leave with a Road Materials and Construction Control Plan. Participants connect subgrade, aggregates, binders, asphalt, unbound and treated layers, concrete, geosynthetics, recycling, stabilization, sampling, testing, production, placement, compaction, and acceptance. The course turns material data into controlled field decisions. Agile Leaders Training Center presents road construction technology through traceable materials and process control.

Who Should Attend

- Teams responsible for selecting and specifying road construction materials
- Functions producing, sampling, testing, and accepting pavement materials
- Personnel supervising earthworks, layers, asphalt, concrete, and geosynthetics
- Groups controlling compaction, temperature, moisture, workmanship, and defects
- Leaders coordinating laboratories, plants, contractors, consultants, and quality records

The course assumes participants can interpret road drawings, material specifications, test reports, quantities, and work procedures, and it leaves out geometric highway design, detailed pavement structural design, and laboratory accreditation.

Departments and Industries

The course supports departments and industries responsible for road-material selection and construction quality.

- Highway engineering, civil works, materials, laboratories, and quality
- Construction supervision, inspection, project controls, and contracting
- Roads, airports, industrial sites, logistics facilities, and property developments
- Aggregate, asphalt, concrete, binder, geosynthetic, and recycling supply
- Consulting, testing, production, placement, and technical services

Learning Objectives

By the end of this course, participants will be able to:

- Compare subgrade, aggregate, binder, asphalt, concrete, and geosynthetic options
- Apply sampling, testing, production, placement, and compaction controls
- Analyze moisture, temperature, density, gradation, and mixture evidence
- Evaluate stabilization, recycling, and sustainability trade-offs
- Diagnose construction defects and define corrective actions
- Build a Road Materials and Construction Control Plan

Course Agenda

Day 1: Ground and Layer Materials

- Subgrade Classification and Suitability Matrix
- Earthwork Moisture and Compaction Control Sheet
- Aggregate Source and Property Evaluation
- Base and Subbase Gradation Review
- Geosynthetic Function and Selection Guide

Day 2: Asphalt and Concrete Materials

- Asphalt Binder Property and Selection Matrix
- Asphalt Mixture Component and Volumetric Review
- Moisture Susceptibility and Durability Evidence
- Paving Concrete Material and Joint Checklist
- Material Storage, Handling, and Traceability Plan

Day 3: Production and Placement Technology

- Plant Production and Calibration Control
- Hauling, Segregation, and Temperature Management
- Layer Preparation and Tack Application Checklist
- Paver Operation and Mat Quality Control
- Roller Pattern and Density Achievement Plan

Day 4: Testing, Acceptance, and Improvement

- Material Sampling and Sample Security Protocol
- Field and Laboratory Test Schedule
- Quality Lot and Acceptance Decision Matrix
- Defect Cause and Corrective Action Register
- Recycling, Stabilization, and Resource Trade-Off Review

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Day 5: Road Materials Control Practice

- Exercise: Evaluate Subgrade, Aggregate, and Geosynthetic Options
- Exercise: Review Asphalt and Concrete Material Evidence
- Exercise: Control Production, Placement, and Compaction
- Exercise: Make an Acceptance and Corrective Action Decision
- Capstone Exercise: Road Materials and Construction Control Plan

Practical Exercises

The course uses suggested activities to connect material characteristics with production, field execution, and acceptance decisions.

- Suggested activity: compare subgrade, aggregate, stabilized-layer, and geosynthetic options against service and construction requirements.
- Suggested activity: review binder, mixture, concrete, moisture, density, gradation, and temperature evidence for a pavement section.
- Suggested activity: map plant, hauling, placement, compaction, sampling, testing, and traceability controls for a work package.
- Suggested activity: integrate materials, technologies, acceptance criteria, defects, corrective actions, and sustainability choices in a Road Materials and Construction Control Plan.

FAQs

Who suits the road materials and construction technology course and what does it assume?

It suits teams selecting, producing, testing, placing, inspecting, or accepting road materials and assumes they can interpret drawings, specifications, test reports, quantities, and construction procedures.

How does road materials training differ from pavement design training?

Road materials training focuses on material behavior, production, placement, testing, and acceptance, while pavement design training determines structural layer thicknesses and performance for traffic, climate, and ground conditions.

How are road construction materials accepted?

Road construction materials are accepted through approved sources, traceability, representative sampling, specified tests, process records, field measurements, lot evaluation, workmanship inspection, and documented disposition of nonconforming results.

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Why are temperature moisture and compaction controlled in roadwork?

Temperature, moisture, and compaction are controlled because they influence workability, density, bonding, strength, permeability, uniformity, and the likelihood of early construction defects.

What belongs in a road materials control plan?

A road materials control plan records sources, properties, approvals, sampling, tests, production limits, placement methods, compaction, traceability, acceptance rules, defect responses, responsibilities, and quality records.

Conclusion

Participants take back a Road Materials and Construction Control Plan linking material selection, tests, production, placement, compaction, acceptance, defects, recycling, and stabilization. It changes disconnected laboratory and field data into traceable quality decisions. The plan supports controlled road construction without replacing detailed pavement design, project specifications, or authorized laboratory procedures.