



Civil Engineering

Road Construction Materials and Construction Technologies

Course Introduction

An innovative highway industry provides a major market for the use of 'waste' resources, at the same time minimizing the need for 'natural' resources. Selected waste streams and industrial by-products, formerly bound for a landfill, are more frequently finding a route into sustainable highway design and maintenance.

Asphalt pavements, concrete, base courses and embankments increasingly have incorporated 'waste' resources instead of raw materials. Reclaimed concrete and asphalt, scrap tires, plastics, steel slag, roofing shingles, coal fly ash, and composted municipal organic wastes are proven, cost effective, and high-efficiency materials with broad applicability in roadway construction.

Other environmentally sustainable actions beyond mere building materials include right-of-way management, the reuse of organic materials from cleaning and grubbing operations, deconstruction of buildings removed from rights-of-way, minimal right-of-way footprints.

Target Audience

- civil engineers.
- Experienced Civil Engineers Seeking Professional Development
- Architects and Urban Planners
- Entrepreneurs in the Construction Industry
- Project Managers in the Construction Industry

Learning Objectives

- Identify the road materials and material properties in construction and materials used in road pavements and etc.

- Enumerate the different types of asphalt mixtures as well as the design of asphalt concrete mixture which also applies testing, specification of methods and marshal method
- Implement quality control and quality assurance in road construction
- Enhancing the skills of road construction engineers in their field
- Introduction to road construction materials
- Determination of engineering properties of road materials
- Quality control and quality assurance in road construction

Course Outline

- **DAY 01**

An introduction to road construction materials

- The used materials for road embankment, road pavement (gravel roads, surface dressed roads, paved roads, etc)
- Material properties
- Soil and subbase: Standard tests to determine the engineering properties of road materials
- Standard tests to determine the engineering properties of road materials

- **Day 02**

Asphalt Mixtures

- Types of Asphalt Mixtures
- Hot mix asphalt concrete
- Warm mix asphalt concrete
- Cold mix asphalt concrete

- **Day 03**

Design of Asphalt Concrete Mixture

- Testing of materials used in the asphalt mix (course aggregate, fine aggregate, mineral filler, binder etc.)
- Specification requirements
- Blinding of aggregate
- Graduation of blended aggregates

- Marshal method for design of asphalt mixtures; volumetric relationships, optimum bitumen content, tolerance, job mix formula

• Day 04

Quality Control and Quality Assurance in Road Construction

- The importance of quality control in road construction processes
- Selecting of materials sources
- Testing of materials • Inspection of the executed work
- Testing the executed work
- Filling the test result for quality assurance process
- Quality assurance in road construction processes

• Day 05

Road Construction Technology

- Introduction to the new technologies in road construction
- New equipment's, new techniques used in road construction

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
April 13, 2025	April 17, 2025	5 days	4250.00 \$	KSA - Riyadh
Aug. 11, 2025	Aug. 15, 2025	5 days	4950.00 \$	Spain - Madrid
Oct. 20, 2025	Oct. 24, 2025	5 days	4250.00 \$	UAE - Dubai