



Training Course :

ROAD CONSTRUCTION MATERIALS AND CONSTRUCTION TECHNOLOGIES

Training Course For One Week In

Austria , Vienna , Hotel de France
Wien

Which Be Held As Under Details :



Abar Solutions Petroleum Consultancy Invite Your Employee To Participate With Us In Special Training Course As Under Details :

Course Name		ROAD CONSTRUCTION MATERIALS AND CONSTRUCTION TECHNOLOGIES			
Code	Period	Language	Start	End	Location
CE 65	5 Days	English	07/08/2017	11/08/2017	Austria , Vienna , Hotel de France Wien
			04/09/2017	08/09/2017	
			09/10/2017	13/10/2017	
			13/11/2017	17/11/2017	
			18/12/2017	22/12/2017	
			15/01/2018	19/01/2018	
			12/02/2018	16/02/2018	
			12/03/2018	16/03/2018	
			23/04/2018	27/04/2018	
			14/05/2018	18/05/2018	
			11/06/2018	15/06/2018	
			09/07/2018	13/07/2018	
<p align="center">** The Fees Includes : Lecturer , Training Material , Training Room With One Coffee Break Daily , Certificate Of Attendance In Last Day Training Course **</p>					

Course Description

⇒ 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,

Course Objectives

⇒ **The objectives of this program can be summarized in the following main points:**

- 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 Content & Outlines

⇒ **An introduction to road construction materials including but not limited to the following:**

- 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 such as; sieve analysis, liquid limit, plastic limit, plasticity index, soil classification according to AASHTO classification system, standard and modified proctor tests,, California bearing ratio (CBR), modulus of resilient of subgrade soil, relative compaction test, etc.
 - **Base course:** Standard tests to determine the engineering properties of road materials such as; sieve analysis, liquid limit, plastic limit, plasticity index, soil classification according to AASHTO classification system, standard and modified proctor tests,, California bearing ratio (CBR), modulus of resilient of subgrade soil, relative compaction test, Los Angeles (abrasion) test, absorption and disintegration test, etc.
 - **Bitumen material:**
 - Ashalt cement

- Cut back asphalt
 - Emulsified asphalt
 - All standard test on different types of bituminous materials will be illustrated including but not limited to; bitumen grade test, softening point, ductility, solubility of bituminous materials in organic solvents, etc.
 - **Asphalt mixtures: types of asphalt mixtures;**
 - Hot mix asphalt concrete
 - Worm mix asphalt concrete
 - Cold mix asphalt concrete
 - Properties of each mix will be discussed. Also, the components and method of manufacturing will be illustrated
 - **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 blinded aggregates
 - Marshal method for design of asphalt mixtures; volumetric relationships, optimum bitumen content, tolerance, job mix formula.
- ⇒ **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
 - Road construction technology:
 - Introduction to the new technologies in road construction
 - New equipments, new techniques used in road construction