Inspection and Maintenance of Roadways

INTRODUCTION

- Roads and highways are the vital facility of travel among communities, and they have an important role in implementing economic activities into local life. To decrease downtime of roads for maintenance activities, the overall quality of road construction should be upgraded.
- This training course on Inspection and Maintenance of Roadways includes the important items of the analysis and the design of pavement, with a focus on the development of connotations in workable design situations. After finalizing of the course, delegates should be updated with the recent methodology in the field of pavement design.

This training course will highlight:

- Understanding the experimental tests of soil to be classified
- Understanding the design of different types of pavements
- Understanding the design of hot asphaltic mixture
- Case studies of Superpave mixes
- Solutions of most problems of pavements
- Pavement maintenance and rehabilitation

OBJECTIVES

- The training course studies all characteristics of asphalt technology, design of roadway pavement, hot mix design, maintenance and rehabilitation. It illustrates in detail superpave system for choosing the appropriate materials and designing the mixtures of asphalt to satisfy weather and traffic conditions of specific roadway paving projects. Moreover, its studies reasons of deterioration of roadways and method of maintaining roadways.

At the end of this training course, participants will learn to:

- Distinguish between different types of pavement
- Classifying the soil according to AASHTOO
- Design the hot asphaltic mixture
- Manage the program of pavement maintenance and rehabilitation

TRAINING METHODOLOGY

- This training course will employ methods of modern and attractive techniques which increase the understanding of the delivered material. Case studies, workshops, videos, photos and games will be used every day in order to achieve the target of paying the attention in attractive way.

ORGANISATIONAL IMPACT

- Improve the organization projects output by enhancing the quality of engineering review
- Reduce the organization expenses by new idea for maintenance scheme
- Improve the organization investment by knowing the up to date technology in pavement design
- Improve the projects investment by define the way to have a durable pavement by better design, construction or maintenance

PERSONAL IMPACT

- Enhance the roadways design capability of the trainee
- Increase knowledge of up to date of performing roadways
- Increase the skill for maintenance approach
- Increase the skill to inspect cracked roadways and suggesting best solutions

WHO SHOULD ATTEND?

- This Inspection and Maintenance of Roadways training course is intended to provide professionals and engineers to be familiar with recent methods of pavement rehabilitation and soil classification related to AASHTOO.
- It will also be beneficial for junior or senior level civil and structural/geotechnical engineers who need to have in-depth knowledge about the pavements types and their design and how to apply in the construction phase.

This training seminar is specifically designed for:

- Civil Engineer
- Civil Technician
- Structural Engineer
- Geo-technical Engineer

Course Outline

Flexible and Rigid Pavement Structural Design

- Introduction to the Basics of Pavement and Good Review of Pavement Background
- The Soil Classification AASHTO for Existing Sub-grade Soil with Suitable Examples
- The Difference between Flexible Pavement and Rigid Pavement
- Design of Flexible Pavements

Design of Hot Asphaltic Mixture

- Physical Properties of Hot Asphaltic Mixture - Aggregates and Asphalt Cement
- Preparing the Asphaltic Samples
- The Method of Extracting the Asphalt Samples to be Tested
- The Test of Sieve Analysis
- Different Types of Hot Mixes with Different Methodology of Design
- Marshall Mix Design with Solved Examples
- The Stages of Constructing Pavement
- The Effect of Recycling Loads on Pavement

Superpave Asphalt Volumetric Mix Design

- Terminology, Equipment Used
- Methods of Mix Design to Get Durable Pavement
- Principal of Choosing the Appropriate Materials
- Determination of a Design Aggregate Structure
- Determine of Design Asphalt Binder Content
- Type of Superpave Mixes
- RAP in Superpave Mixes
- Superpave Mix Design Improved with Solved Examples

Pavement Soil Mechanics

- Properties of Soil Mechanics
- Classification of Soil according to AASHTOO
- Roughness Evaluation
- Structural Capacity Evaluation
- The Cost Analysis of the Life Cycle of the Pavement for both of Flexible and Rigid Pavements
- Programming of Rehabilitation and Maintenance of Pavement

Reason of Roadways Deterioration

- Cracks in Roadways and Rutting
- Detection Tests of Roadways
- Precaution for Saving the Paved and Unpaved Roadways
- Maintenance Scheme Method of Roadways
- Advanced and Up-to-date Technology of Pavement Maintenance