

PAVEMENT DESIGN & ASPHALT TECHNOLOGY

OBJECTIVES

The course addresses all aspects of asphalt technology, successfully implemented roadway pavement structural design, hot mix design, maintenance and rehabilitation. The course details Superpave system for selecting materials and designing asphalt mixtures to meet climate and traffic conditions of specific roadway paving projects. Also it highlights the pavement management system and asset management. The course provides tremendous exposure to the North American experience and technology for all sectors involved in design, construction and quality control.

BENEFITS

The course will benefit individuals involved in transportation and pavement, including practitioners from regional and local government agencies, consultants, suppliers/vendors, researchers, faculty members, and transit agency professionals.

PRESENTER

Ms. Hoda Seddik, M.A.Sc., P.Eng.

Ms. Seddik is AMEC's Associate/Senior Asphalt and Pavement Engineer with over 25 years of experience in rigid and flexible pavement structural designs including; MTO, TAC, AASHTO, and AI, overlay design for asphalt and concrete pavements. Ms. Seddik was the World Bank pavement specialist for a 75 km project for Rehabilitation & Upgrading to 4/6 Lane Divided Hwy. from Panagarh - Palsit Section of NH-2 in West Bengal India Using Canadian Expertise. Ms. Seddik has wide experience in methods of rehabilitation, asphalt maintenance techniques, life cycle cost analysis. Ms. Seddik has a strong background in soil investigation and soil classification, and test methods. Also, she has experience in pavement management systems and asset management, pavement evaluation including; pavement deflection, traffic survey, roughness, deflection and friction resistance measurements, waterproofing of bridge decks and parking garages.

PROGRAM

DAY ONE

FLEXIBLE AND RIGID PAVEMENT STRUCTURAL DESIGN

- Introduction to Flexible and Portland cement Concrete Pavement
- Pavement Fundamentals
- Subgrade Soil Classification and Drainage/ Participant Interaction with problem solving and examples
- Flexible Pavement Structural Design Using AASHTO Method
- Rigid Pavement Structural Design Using AASHTO Method and the Canadian Portland cement Association
- Using Darwin Software for Flexible Pavement Design/ Participant Interaction with applicable examples
- Using Portland cement Association for Concrete Pavement Design PCA software/Participant Interaction with applicable examples

DAY TWO

HOT MIX DESIGN

- Physical Characteristic of Aggregates and Asphalt Cement
- Sampling, Sample Identification and Sample Preparation
- Extraction of Asphalt Concrete for Testing
- Sieve Analysis
- Types of Hot Mixes and Methods of Mix Design
- Marshall Mix Design// Participant Interaction with problem solving and examples
- Pavement Construction and Pavement Recycling
- Cold in Place Recycle Technology & Emulsions

DAY THREE

SUPERPAVE ASPHALT VOLUMETRIC MIX DESIGN (STATE-OF-THE-ART)

- Terminology, Equipment Used

- Mix Design
- Selection of Materials
- Determination of a Design Aggregate Structure
- Determine Of Design Asphalt Binder Content
- Check Moisture Sensitivity of the Design Mixture
- Type of Superpave Mixes
- RAP in Superpave Mixes
- Superpave Mix Design/ Participant Interaction with problem solving and examples

DAY FOUR

PAVEMENT MANAGEMENT SYSTEM (PMS)

- Concept of PMS
- Pavement Management Levels and Functions
- Pavement Performance
- Serviceability
- Roughness Evaluation, Structural Capacity Evaluation, Condition Survey for Surface Defects and Distress, Skid Resistance
- Life Cycle Cost Analysis/ Participant Interaction with problem solving and examples
- Determination of Present and Future Needs, and Priority Programming of Rehabilitation and Maintenance

DAY FIVE

ASSET MANAGEMENT

- Perpetual Pavements
- Pavement Maintenance and Rehabilitation
- Video Prepared By the Ministry Of Transportation about Roads and Highways in Ontario.
- Use of recyclable materials in asphalt pavement
- Foamed Asphalt