



Asphalt Concrete Materials & Mix Design (CCC-01)

Course Outline

Day 1

- Functionality of Asphalt Pavement
 - Safety-skid
 - Smooth
 - Life cycle cost
 - Resistance to traffic and climate
 - Constructability

- Distress mechanism- traffic and climate
 - Rutting
 - Low temp cracking
 - Fatigue Cracking
 - Age-related cracking
 - Moisture Sensitivity
 - Relative influence of mix design and construction, and construction design, appropriate structural design

Day 2

- Material Components
 - Aggregate Properties
 - Description and test methods: texture, shape, gradation, maximum size (relationship to compactability), chemical durability, mechanical durability, surface chemistry
 - Asphalt Binder Properties
 - Stiffness, Master curve, aging, elastic recovery, modification
 - RAP Properties
 - What is RAP?
 - Properties of asphalt and aggregate in RAP
 - Asphalt blending process
 - Recycling agents

- Mix Properties for different applications
 - Dense, Gap, Open
 - Asphalt and aggregate proportioning to get mix properties
 - Basics
 - Volumetric
 - Balanced mix design concept and performance related tests
 - RAP inclusion in mix-blended binder and aggregate

Day 3

- Mix Design – Superpave
 - Basic concepts, where, when it came from
 - Procedure
 - Testing
 - Iterative Process

Day 4

- Mix Design - Asphalt Rubber Mix Design and Open Graded Mix Design
 - Asphalt Rubber
 - Basic concepts, where, when it came from
 - Testing
 - Iterative Process
 - Open Graded
 - Basic concepts
 - Testing
 - Iterative process