



Introduction to Pavement Engineering and Management (CCA-01)

CLASS OUTLINE

- Day 1**
- Module 1** Pavement overview
- What are pavements
 - Functional requirements
 - What stakeholders want
 - Pavement types and key issues
 - Drainage
 - Pavement life cycle
- Module 2** Pavement materials
- Strength, stiffness, damage definitions
 - Soils and stabilization
 - Aggregate
 - Asphalt and asphalt mixes
 - Sprayed asphalt
 - Cement and concrete
 - Materials of the future
- Module 3** Sustainability considerations
- Cost sustainability and life cycle cost analysis (LCCA)
 - Environmental sustainability and life cycle assessment (LCA)
 - Environmental impacts of materials production and construction
 - Environmental Product Declarations
- Day 2**
- Module 4** Traffic, Environment and Basics of Treatment Types
- Treatment definitions
 - Pavement life cycle
 - Traffic variables
 - Climate variables
- Module 5** Pavement Distresses for Asphalt Surfaced Pavement
- Structural distresses
 - Surface distresses
 - Soils problems
 - Preservation and maintenance treatments
 - Decision tree logic to address distresses with preservation and maintenance

- Day 3 Module 6** Rehabilitation and Reconstruction Design and Selection Process
- Project investigation
 - Desktop
 - Site
 - Sampling and testing
 - Examples of inadequate site investigation
 - Treatments
 - Asphalt overlays
 - Partial-depth reclamation
 - Full-depth reclamation
 - Concrete overlays
 - Decision logic
- Module 7** Pavement Distresses for Concrete Surfaced Pavement
- Concrete pavement distress mechanisms
 - Design and construction
 - Pavement design, jointing
 - Mix design
 - Construction
 - Concrete pavement maintenance and rehabilitation
- Day 4 Module 8** Pavement Distresses for Surface Treated, Gravel Surfaced and Permeable Pavements
- Gravel and surface treated roads
 - Distress mechanisms
 - Engineered Gravel
 - Unpaving to engineered gravel
 - Permeable pavement
 - Distress mechanisms
 - Functionality
 - Use
- Module 9** Overview of Pavement Management
- What is a pavement management system
 - How a PMS works
 - Framework
 - Condition survey
 - Decision trees
 - Prioritization
- Module 10** Overview of LCCA and LCA and How to Use This Information
- Introduction to LCCA
 - Introduction to LCA
 - How it works
 - What to focus on now to improve sustainability
 - EPDs

Overview of Other Pavement Courses in the CCPIC/Tech Transfer Program