

Maintenance and Preservation Treatment of Highways to Economically Enhance Service Life in Sustainable Manner

Overview

Diminishing budgets and the recent recognition of the benefits of considering life-cycle costs have motivated changes in agency policies that advocate environmental and financial sustainability through the practice of highway preservation. This is in stark contrast to the “worst-first” approach that was commonly practiced in the past, in which highways were allowed to deteriorate to a highly distressed condition before performing major (and more intrusive) rehabilitation. In fact, the Federal Highway Administration has been a strong proponent and supporter of the concept of cost effectively preserving the USA’s roadway network. This has helped to spur a countrywide movement of highway preservation and preventive maintenance programs, with an overall goal of improving safety and mobility, reducing congestion, and providing smoother, longer lasting highways. The philosophy of pavement preservation is often succinctly captured in terms of “applying the right treatment to the right pavement at the right time.” Highway preservation is inherently a sustainable activity.

This course will cover topics like low-cost and low-environmental-impact treatments to prolong or extend the life of the highways by delaying major rehabilitation activities which will minimize energy consumption and use of virgin materials while reducing GHG emissions over the life cycle. Furthermore, well-maintained highways provide smoother, safer, and quieter riding surfaces over a significant portion of their lives, resulting in higher vehicle fuel efficiencies, reduced crash rates, and lower noise impacts on surrounding communities, which positively contributes to their overall sustainability.

International expert with demonstrated credentials in teaching, research, consulting, and training will be part of the course to deliver lectures, and discuss case studies and real life experience of highway preservation techniques.

Objectives:

Primary objectives of the course are as follows:

- Identify Pavement Condition Assessment Tool and how to incorporate Falling Weight Deflectometer in evaluating and assessing existing condition of highway using accepted agency standards at a set inspection frequency
- Identify conditions that can be beneficially addressed through preservation
- Identify and select highway performance models to forecast future performance with and without the application of preservation treatments.
- Identify highway treatment rules and treatment impact rules.

Modules	A: Advances in Assessment of Highway Conditions: Dec 21 - Dec 25 B: Advances in Maintenance Treatments of Highways: Dec 26 - Dec 30 Number of participants for the course will be limited to fifty (50).
You Should Attend If...	<ul style="list-style-type: none"> ▪ you are a Civil/ Transportation engineer/ Planner or research scientist interested in non-destructive testing, assessment and planning related to Highway maintenance and rehabilitation. ▪ You are practicing Civil Engineers working in various private and government organizations. ▪ you are a student or faculty from academic institution interested in learning how to do research / project/ field work related to highway preservation.
Fees	<p>The participation fees for taking the course is as follows:</p> <p>Participants from abroad : US \$200 (For student: US \$100) Industry/ Research Organizations: Rs.10000/- Faculty/ Staff from Academic Institutions: Rs.2000/- Students (India): Rs.1000/-</p> <p>The above fee includes all instructional materials, computer use for tutorials and assignments and laboratory equipment usage charges. The course fee does not include accommodation. However, the participants will be provided accommodation in Institute Guest House subject to availability on payment basis directly by participant.</p>

Main Faculty



Prof. Vivek Tandon is in the faculty of University of Texas at El Paso, USA. The main area of expertise and interest is development of innovative climate resilient materials for highway infrastructure that generates minimal carbon footprint. This includes modification of existing materials like asphalt, aggregate, asphalt concrete, soils, and PCC, and development of new materials like geopolymers. The minor areas of expertise include nondestructive testing of highways and impact of climate change on transportation infrastructure.

Additional Faculty

Few renowned faculty members and Scientist from IIT Kharagpur have also agreed to deliver on various related subjects.

Course Coordinator



Prof. Mahabir Panda
Professor, Department of Civil Engineering
National Institute of Technology, Rourkela, Odisha, India, 769008
Phone: +916612462312 (O), +919437172237 (Mob)
E-mail: mpanda@nitrkl.ac.in
Prof. Mahabir Panda's primary research interest includes pavement materials, pavement analysis and design, and low volume roads.