

# Building Resilient and Sustainable Roadway Infrastructure

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## Overview

The course will provide an in-depth technical understanding and knowledge of the impact of road construction on the climate and the impact of climate change on the roadway infrastructure. Methods to reduce the impact, such as sustainable road construction and evaluation of risks and resilience of roadways against the effects of climate change will be presented. Topics will include energy consumption, emission, use of natural resources, recycling, warm mix asphalt, IPCC climate change projections, use of downscaled data for climate change predictions, incorporation of climate change impacts into roadway design and construction, adaptation of roadway design and construction against impacts of extreme weather and climate change related events. Specific topics will include impacts of rise in temperature, increase in rainfall, earthquake and flooding. State of the art on techniques of building sustainable roadways, and a resilient infrastructure will be presented, with specific reference to Indian conditions.

The course will consist of lectures, several short exams/quiz, a final exam and workshop/discussion sessions.

<b>Dates for the Course</b>	<b>12<sup>th</sup> December, 2016 to 23<sup>rd</sup> December, 2016</b>
<b>Host Institute</b>	<b>IIT Madras</b>
<b>No. of Credits</b>	<b>2</b>
<b>Maximum No. of Participants</b>	<b>60</b>
<b>You Should Attend If...</b>	<ul style="list-style-type: none"><li>▪ You are a central, state or city civil engineer/urban planner who is involved in road design, construction, maintenance and management who wants to build sustainable and resilient roadways</li><li>▪ You are an engineer with road design and/or construction firm who want to develop and implement innovative concepts</li><li>▪ You are a student or faculty from academic institution interested in learning how to do research on understanding vulnerability of roadways to extreme events and impact of road design and construction on the environment, and want to develop solutions</li></ul>
<b>Course Registration Fees</b>	<p>The participation fees for taking the course is as follows:</p> <p><b>Student Participants:</b> Rs.2000 <b>Faculty Participants:</b> Rs.6000 <b>Government Research Organization Participants:</b> Rs.10000 <b>Industry Participants:</b> Rs.20000</p> <p>The above fee is towards participation in the course, the course material, computer use for tutorials and assignments, and laboratory equipment usage charges. The participants may be provided with hostel accommodation, depending on the availability, on payment basis.</p>

## Course Faculty



**Rajib B. Mallick** is Professor of the Civil and Environmental Engineering at Worcester Polytechnic Institute (WPI) in Massachusetts, USA. His research interests are in sustainable development and resilient infrastructure, specifically related to the pavement (highway/rural roads/airport) industry.



**A. Veeragavan** is Professor in the Department of Civil Engineering at the Indian Institute of Technology (IIT) Madras, India. His research interests are in the area of pavement maintenance and management, recycling of bituminous mixes for sustainable highway pavements, forensic investigation of pre-mature failure of pavements and use of modified binders for long lasting pavements.

## Course Coordinator

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