



# ROAD SAFETY FIRST: EFFECTIVE APPROACHES, PRACTICES TO ATTAIN VISION ZERO

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## Overview

In recent times, increase in the vehicle population has led to the construction of many good quality roads. However, the absence of lane discipline, a lack of enforcement, and other behavioral factors have contributed to the significant increase in traffic accidents on Indian roads. With over 147,000 deaths and 475,000 injuries in 2017, the country presently has the highest number of road traffic accident deaths in the world. The Global Status Report on Road Safety 2018 published by the World Health Organization (WHO) shows that this problem is getting worse. In true sense, road fatality is turning out to be an "epidemic" which will become the world's fifth biggest killer by 2030. Interestingly, 90 percent of deaths on the world's roads occur in low and middle-income countries, although they only account for 54% percent of the world's registered vehicles. Looking at the sharp increase in the number of roadway accident deaths across the globe, the United Nations (UN) has declared the present decade (2011-2020) as the Decade of Action for Road Safety and included road safety in the Sustainable Development Goals. These initiatives not only made road safety a part of the public health and urban development agenda but also encouraged different countries to implement road safety activities in each of the five pillars of the global plan, namely, i) building road safety management capacity, ii) improving the safety of road infrastructure and broader transport networks, iii) further developing the safety of vehicles, iv) enhancing the behaviour of road users, and v) improving post-crash care.

Road safety field primarily deals with the protection and security of all those who travel on roads. It captures all – from pedestrians to animal-drawn vehicles and from two-wheelers to all types of multi-wheel transport. Road traffic accident may be an everyday occurrence but it is both predictable and preventable, as illustrated by the large body of evidence on key risk factors and effective road safety measures. It has long been a tradition in road safety to analyze road safety data to understand why crashes occur, which factors influence risks, and what determines crash severity, and based on this understanding, to arrive at reliable conclusions on how to prevent them most effectively and efficiently. Planners and road safety analysts are therefore in a position to thus assess the most critical points in the network for an objective assessment of traffic safety as well as the establishment of a ranking of segments for further analysis and treatment. This way, limited financial resources can be prioritized according to their effect on traffic safety. Furthermore, evaluation of safety interventions by comparing collected data before and after the change requires the know-how of before-after studies.

The enormity of the impact of highway safety on human societies has resulted in massive expenditures on safety-related countermeasures and therefore its selection criteria must be full-proof. Some of the many factors affecting the frequency and severity of crashes are not observable, or the necessary data may be nearly impossible to collect. If these unobserved factors (often referred to as unobserved heterogeneity) are correlated with observed factors, biased parameters will be estimated and incorrect inferences could be drawn. Therefore, these methodological issues of crash modelling must be understood clearly by researchers and practitioners. Going by the ideology 'Prevention is better than cure', road safety audit procedures are being designed to manage safety by identifying, addressing risks associated with road safety deficiencies and auditing at different stages of a project, starting from the planning stage. This approach not only leads to the timely elimination of problems but also minimizes the time and costs of retrofitting roads/ transport infrastructure to improve safety at a later stage. Going forward, despite the large body of safety modeling research, absolute numbers of crashes and crash rates are still difficult to predict accurately. In the absence of reliable crash data, as in India, it is important to look for surrogate measures (based on geometric features, flow characteristics, etc.) that indicate traffic related risks. While safety research has historically utilized some

combination of police-reported crash data, sensor- or camera-based operational data, human factors data from driving simulators, and so forth, naturalistic driving studies have recently become a promising alternative for collecting more detailed data than is possible using the traditional methods. Utilization of such data provides researchers with an opportunity to analyze actual behaviors and situations that contribute to crash events as opposed to relying on post-crash accounts from police crash report forms.

The proposed course on road safety is designed to attract transportation professionals, researchers, and teachers, as well as students from different backgrounds. The lectures and other components of the course on road traffic safety will be delivered by an internationally acclaimed faculty member from the USA and another from IIT Roorkee who have been extensively involved with teaching, sponsored research, and consultancy projects in the field of Traffic Engineering and Safety. By attending this course, the participants will have an opportunity to get exposed to several state-of-the-art techniques and measures that are being issued worldwide to reduce risks of injury, death, and harm of road users. Consequently, it is believed that the participants will be able to make significant contributions to society by putting into practice the learnings of this course. These interactive lecture sessions will go a long way towards proving that deaths and injuries on the roads need not be an inevitable by-product of our highly mobile societies and that together we can indeed build a future in which a culture of road safety prevails and is the first priority. These will ultimately help our roads become safer and make our communities better places to live.

## Broad Objectives

The primary goal of this course is to develop knowledge and skills among the course participants, both from industry and academia, in the methods and procedures involved in the development, implementation, and evaluation of road safety initiatives. Thus, the proposed course will help eradicate this menace from India and other countries. Under this broad goal, the objectives of the course are as follows:

- To provide participants with an overview of Traffic Safety: The US Perspective; The India Perspective; Comparison of Global Trends
- Exposure to the state-of-the-art methodological approaches related to the road accident data collection, analysis of transportation safety data.
- Provide exposure to identify hotspots (high-risk locations), conduct before-after evaluations and select potential safety countermeasure
- Make them understand the methodological issues in crash modelling and introduce them with emerging research areas; Surrogate Safety Measures; Naturalistic Driving Studies
- To educate participants and bring about awareness related to the importance of Road Safety Audit and its working procedure

Course participants will learn these topics through lectures and hands-on experiments. Also, case studies and assignments will be shared to stimulate research motivation of participants.

<b>Course dates</b>	<ul style="list-style-type: none"> <li>▪ September 30 – October 04, 2019</li> </ul>
<b>Who should attend it</b>	<ul style="list-style-type: none"> <li>▪ Executives, Engineers, and Researchers from Industry and Government Organizations including R&amp;D laboratories.</li> <li>▪ Faculty Members and Students at all levels (Bachelor/Masters/Ph.D.) from reputed academic and technical institutions.</li> </ul>
<b>Fees</b>	<p><b>Participants from academic institutions (Faculty/Researchers): Rs. 3,000</b>  <b>Participants from Industry/Research Organizations: Rs. 5,000</b>  <b>Students/Research Scholars: Rs. 1,000 (With Credit), Free (No Credit)</b>  <b>Participants from abroad: US \$150</b></p> <p>The above fee includes all instructional materials, free internet facility. <u>Accommodation for Outstation participants will be preferably done inside the campus on payment basis.</u>          Students have to show proof of their full-time student enrollment in an academic institute.</p>

## The Faculty



DR. PETER SAVOLAINEN is an MSU Foundation Professor in the Department of Civil and Environmental Engineering. Dr. Savolainen is an internationally recognized expert in traffic safety. During his academic career, he has secured more than \$18 million of externally funded research through agencies including the National Highway Traffic Safety Administration (NHTSA), the Federal Highway Administration (FHWA), and various state departments of transportation (DoTs). Dr. Savolainen's research examines the fundamental nature of road user behavior, particularly how traffic safety and operations are influenced by behavior in consideration of roadway and traffic characteristics. His work in this area has provided important information as to how road user behavior changes in response to such roadway features as maximum speed limits, centerline/shoulder rumble strips, and red-light-running cameras at signalized intersections. His research has also advanced fundamental knowledge as to how roadway design, environmental factors, and in-vehicle distractions affect the risk of traffic crashes. This research has led to the publication of more than 100 peer-reviewed articles and research, highlighted by a series of contributions in the areas of naturalistic driving research, countermeasure evaluation, and crash-injury severity analysis. Dr. Savolainen currently serves on the editorial advisory boards of Accident Analysis and Prevention and Analytic Methods in Accident Research, as well as on the Transportation Research Board Standing Committees on Statistical Methods and Motorcycles and Mopeds. He is a registered professional engineer in the state of Michigan. For his complete profile, kindly visit:

<https://www.egr.msu.edu/people/profile/pete>



DR. INDRAJIT GHOSH is an Associate Professor in the Department of Civil Engineering, Indian Institute of Technology (IIT) Roorkee. Dr. Ghosh specializes in Traffic Operations and Safety at Intersections, Intercity Highways, Drivers' and Pedestrians' Behavior, Signal Countdown Timers, ITS Applications, etc. He has been an active member of different International and National Professional bodies namely Institute of Transportation Engineers (ITE), American Society of Civil Engineers (ASCE), Indian Roads Congress (IRC), Transportation Research Group of India (TRG), etc. Dr. Ghosh presently serves as the reviewer for a number of Q1 and Q2 journals in the Transportation Engineering field. For his complete profile, please visit:

[https://www.iitr.ac.in/departments/CE/pages/People+Faculty+Indrajit\\_Ghosh.html](https://www.iitr.ac.in/departments/CE/pages/People+Faculty+Indrajit_Ghosh.html)

## Course Coordinator

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Registration on GIAN Portal:

<http://www.gian.iitkgp.ac.in/GREGN>

Indian Institute of Technology (IIT) Roorkee  
Registration Form  
**ROAD SAFETY FIRST: EFFECTIVE APPROACHES, PRACTICES TO ATTAIN  
VISION ZERO**  
MHRD Scheme on Global Initiative on Academic Network (GIAN)  
September 30 – October 04, 2019

- Name:
- Designation:
- Affiliation:
- Address for Correspondence:
  
- Email:
- Phone No (including mobile number):
- Accommodation required: **Yes / No**  
*(Accommodation for a single person or on sharing basis may be available inside the campus @Rs. 750/ per day based upon availability)*
- If **Yes**,
  - Date and Time of Arrival:
  - Date and Time of Departure:
- Cheque/DD No.
- Dated \_\_\_\_\_ for Rs.

Date

Signature of the participant

**Note:**

1. The registration fee should be sent in advance through bank draft drawn in favour of "Dean SRIC, IIT Roorkee" and payable at Roorkee latest by September 15, 2019.

2. The Complete form along with payment may please be sent to:

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