

Report on

INTERNATIONAL COURSE ON ROAD SAFETY AUDIT AND ROAD CONSTRUCTION SAFETY

22 November - 10 December 2021

Course Coordinators

Geetam Tiwari K Ramachandra Rao K.N. Jha

2021



TRIP CENTRE, INDIAN INSTITUTE OF TECHNOLOGY DELHI; MINISTRY OF ROAD TRANSPORT AND HIGHWAYS, INDIA MINISTRY OF HOUSING AND URBAN AFFAIRS, INDIA INDEPEN DENT COUNCIL FOR ROAD SA FET Y INTER NATIONAL (ICORSI) NATIONAL HIGHWAY AUTHORITY OF INDIA WORLD HEALTH ORGANISATION

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International Course on Road Safety Audit, Road Construction Safety, Biomechanics and Crashworthiness

Background

An International Course on Road Safety Audit, Road Construction Safety, Biomechanics and Crashworthiness was organised by Transportation Research & Injury Prevention Centre (TRIP Centre), Indian Institute of Technology, Delhi, on 22 November – 10 December 2021. The course was supported by the Ministry of Road Transport and Highway, Govt. of India, Ministry of Housing and Urban Affairs, Govt. of India, National Highway Authority of India, Independent Council for Road Safety International (ICoRSI) and South East Asia Region, World Health Organisation. The details are as follows.

Course Coordinators

Prof. Geetam Tiwari Prof. K.R. Rao Prof. K.N. Jha Prof. Puneet Mahajan

Location

Indian Institute of Technology Delhi, New Delhi, India

Period

22 November – 10 December 2021

Purpose

Traffic crashes and injuries are serious problems both in less and highly industrialized countries. More years of working life are lost due to crash injuries in both groups of nations than that due to cardio vascular diseases and cancer. It is important that more professionals become aware of the importance and possibilities of injury control, and the basic principles regarding the same.

Target group

Traffic and road engineers, behavioral scientists, mechanical and automotive engineers, law enforcers and police officers.

Objectives

This fifteen days Course targeted to bring together professionals working in the area of transportation planning, safety promotion, biomechanics of impact and vehicle

crashworthiness, road construction safety and acquaint them with state-of-the-art information. The course was especially designed for an interdisciplinary audience of traffic and road engineers, behavioural scientists, mechanical and automotive engineers, law enforcers, and police officers. It focussed to give a global perspective to the road safety problem. The course was divided into three modules. Module 1 was compulsory for all participants followed by three parallel sessions on Road Safety Audit, Road Construction Safety and Biomechanics and Crashworthiness.

The course contents were designed in such a manner so that by the end of the Course the participants should be aware of:

- The latest scientific knowledge regarding traffic planning, prevention of traffic accidents and injuries, and current advances in vehicle crashworthiness and restraint systems. crashworthiness and restraint systems
- Policies and methods which have been shown to be successful and those that have not worked in the past.

They should be able to:

- Improve or start their own programmes on traffic planning and road safety, design data collection systems and avoid pitfalls common in data analysis.
- Propose and implement road safety countermeasures.
- Provide inputs for local and national road safety policies.

Course structure

- Week 1 & 2 : Course held with an option for online participation.
- Week 3 : Required mandatory "in person" participation.
- Participants in the Road Safety Audit module joined course "in person" to fulfil the requirements to get a "Road Safety Auditors Certificate" as recommended by the IRC/MoRTH (submission of practical audit report and written exam).

Course Participants

A total of 84 participants including faculty attended the course out of which 6 participants represented 4 countries other than India.

Course Faculty

| Prof. Geetam Tiwari | IIT Delhi, India |
|-------------------------|----------------------|
| Prof. K.N. Jha | IIT Delhi, India |
| Prof. K.R. Rao | IIT Delhi, India |
| Prof. Nezamuddin | IIT Delhi, India |
| Dr. Rahul Goel | IIT Delhi, India |
| Prof. S.B. Paul | IIT Delhi, India |
| Prof. Sudipto Mukherjee | IIT Delhi, India |
| Prof. Ravi Shankar | IIT Delhi, India |
| Mr. A.K.(Dunu) Roy | Hazard Centre, India |
| Prof. Dilip Patel | SVNIT, Surat |

Prof. Girish Agarwal Mr. Jigesh N Bhavsar Dr. Mathew Varghese Dr. P.D. Nayar Dr. Sadhu S L N Sarma Prof. Hermann Knoflacher Prof. Shrikant I Bangdiwala Dr. Sylvain Lassarre Prof. Amarjit Singh Prof. Kavi Bhalla Shiv Nadar University, India ADB, iRAP, India St. Stephens Hospital, Delhi, India SEAR, WHO, India Safety Expert, India University of Technology, Vienna, Austria McMaster University, Canada IFSTTAR, France University of Hawaii, USA Bloomberg School of Public Health, USA

<u>Course Kit</u>

- 1. Road Safety in India: Status Report 2020
- 2. World Report on Road Traffic Injury Prevention
- 3. Road Traffic Injury Prevention, Training Manual
- 4. Important Specifications From Various Codes For Safer Roads
- 5. Course presentation

Course Programme

The course was delivered in two modules:

- 1. Road Safety Audit
- 2. Road Construction Safety

Module I: COMMON FOR ALL PARTICIPANTS (Online Module)

| Day:1 (Monday) 22-11-2021 (10.00 – 13:30) | | | | |
|---|---|--|--|--|
| 10.00 -11.00 | Welcome | Prof. S.G. Deshmukh, Deputy Director(O), IIT Delhi | | |
| | Introduction Prof. G. Tiwari, Head TRIP-Centre | | | |
| | Course details | Prof. K.R Rao | | |
| | Introduction of participants | Prof. K.N. Jha, | | |
| | Introduction to IRC Safety Audit Certification | Mr. S.K. Nirmal, Secretary General IRC | | |
| 11.00-11:30 | RTI in SEAR Countries | P.D. Nayar, SEAR, WHO | | |
| 11.45-13.30 | Road Traffic Injury National Trends and Transport safety principles | Geetam Tiwari | | |

| Day: 2 (Tuesday) 23-11-2021 (10:00 – 13:30) | | | | | | |
|--|---|---------------------|--|--|--|--|
| 10.00-11.30 | Road Traffic Injury as a Public Health Problem | Kavi Bhalla | | | | |
| 11.45-13.30 | Sustainable Transport paradigm | Hermann Knoflacher | | | | |
| Day:3 (Wednesday) 24-11-2021 (10:00 – 13:30) | | | | | | |
| 10.00-11.30 | International Road Safety Comparison | Kavi Bhalla | | | | |
| 11.45-13.30 | Traffic Safety Legislations /MVA | Girish Agrawal | | | | |
| Day: 4 (Thurs | day) 25-11-2021 (10:00 – 13:30) | | | | | |
| 10.00-11.30 | Accident and Injury Data Recording | Rahul Goel | | | | |
| 11.45–13.30 | 1.45–13.30Human Tolerance to Injuries and Road Safety & Safer Vehicle Design TechniquesSudipto Mukherjee | | | | | |
| Day:5 (Friday |) 26-11-2021 (14:00 – 17:30) | | | | | |
| 14.00-15.30 | Enforcement and Road Safety | Rahul Goel | | | | |
| 16.00-17.30 | Statistical Issues in road safety | Shrikant Bangdiwala | | | | |
| Day:6 (Monda | ay) 29-11-2021 (14:00 – 17:30) | | | | | |
| 14.00-15.30 | Speed and Safety | K. R. Rao | | | | |
| 15.45-17:30 | Risk Assessment Models | Sylvain Lassare | | | | |
| Day:7 (Tuesd | ay) 30-11-2021 (14:00 – 17:30) | | | | | |
| 14.00-15.00 | Urban Road Design | Geetam Tiwari | | | | |
| 15.00-16.00 | Road Safety in Urban Areas | Herman Knoflacher | | | | |
| 16.00-17.30 | Evaluation of Safety Measures | Shrikant Bangdiwala | | | | |
| Day:8 (Wednesday) 01-12-2021 (14:00 – 17:30) | | | | | | |
| 14.00-15.30 | Highway Safety Standards (Blackspot Inspection)/ | Rahul Goel | | | | |
| 15:30-16:00 | Safety Film | | | | | |
| 16:00-17.30 | Variables Influencing Driver Speed | Sylvain Lassare | | | | |

| Day:9 (Thursday) 02-12-2021 (14:00 – 17:30) | | | | |
|---|-----------------------|---------------------|--|--|
| 14.00-15.30 | Road Accident Costing | Sourabh Paul /DIMTS | | |

| 15.45-17.30 | Prehospital care Mathew Varghese | | | |
|--|---|-----------------------|--|--|
| Day:10 (Friday) 03-12-2021 (14:00 – 17:30) | | | | |
| 14.00-15.30 | Traffic Calming & VRU Safety | Geetam Tiwari | | |
| 15.30-17.30 | ITS and Traffic Safety | Nezamuddin | | |
| Day:11 (Monday | y) 06-12-2021 (10:00 – 14:00) | | | |
| 10.00-11.30 | Highway Acts + Road Side Hazard Management | SSLN Sarma | | |
| 11.30-13.00 | Highway Construction Zone Safety | K.N. Jha | | |
| 13:00 - 14:00 | Hill Road Safety | Girish Agrawal/KN Jha | | |

IN PERSON MODULE

Venue: IRD Conference Room, 7th Floor, Main Building, IIT Delhi.

| Day:12 (Tuesday) 07-12-2021 | | | | | | |
|--------------------------------------|--|---------|--|--|--|--|
| 09:00-10:00 | IRAP Jigesh | | | | | |
| 10.00-11.00 | Road Safety Audit Preparation All Faculty and Participants | | | | | |
| 11.00-13.30 | Field Audit | | | | | |
| 14.00-17.00 | Safety Audit Findings and report preparation | | | | | |
| Day:13 (Wednes | sday) 08-12-2021 | | | | | |
| 10.00-17.30 | Highway Field Audit | | | | | |
| Day: 14 (Thurse | lay) 09-12-2021 For Certificate Cours | se Only | | | | |
| 09.30-11.30 | 09.30-11.30 Exam 1 | | | | | |
| 12.00-13.30 Exam 2 | | | | | | |
| 13.30-14.30 | 13.30-14.30 LUNCH | | | | | |
| 14.30-17.30 Audit Report Preparation | | | | | | |

| Day: 15 (Friday) 10-12-2021 (All participants) | | | | |
|--|---|--|--|--|
| 10.00-12.00 | Audit report presentation | | | |
| 12:00 - 12:30 | Feedback and discussion | | | |
| 12:30 - 14:00 | Valedictory session - Prof. Sanjay Mitra, | | | |
| | Member, Supreme Course Committee on Road Safety | | | |
| 14.00- | LUNCH | | | |

Road Construction Safety (Module 3B) from Day 11

| Day:11 (Monday) 6-12-2021 (Online) | | | | |
|------------------------------------|--|--------------|--|--|
| 10.00-11.30 | Zero Accident Techniques Amarjit Singh | | | |
| 11.45 – 13.15 | Construction labour related issues A K (Dunu) Roy | | | |
| Day:12 (Tuesda | ay) 7-12-2021 | | | |
| 10.00-11.30 | Why Injuries Occur in Construction Amarjit Singh | | | |
| 11:30-13:00 | Accidents in Construction industry K N JHA | | | |
| Day:13 (Wedne | esday) 8-12-2021 | | | |
| 10:00-11:30 | Safety and Reliability in construction projects | Ravi Shankar | | |
| 11.30 - 13.00 | Risk assessment in construction projects Dilip Patel | | | |
| Day:14 (Thursd | ay) 9-12-2021 | | | |
| 10:00-11:30 | Tort Law, Liability, and Standard of Care Amarjit Singh | | | |
| 11:30-13:00 | Temporary Structures Safety and Design Issues K N Jha | | | |
| Day:15(Friday) 10-12-2021 - | | | | |
| 10:00-11.30 | Safety Incentives Amarjit Singh | | | |
| 11:30-13:00 | Failure cases in constructionK.N.Jha | | | |
| 13:00-14:00 Lunch | | | | |
| 14:00-17:30 | 17:30Safety issues related to formwork in multistoreyed building construction, Presentation and QuizK N Jha | | | |

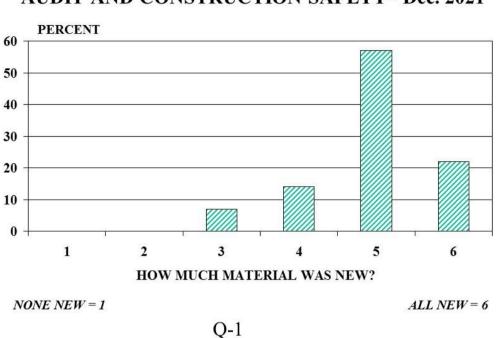
Course Evaluation Form

The course was evaluated by participants as per the questions given below:

Please evaluate the CONTENT of the Course

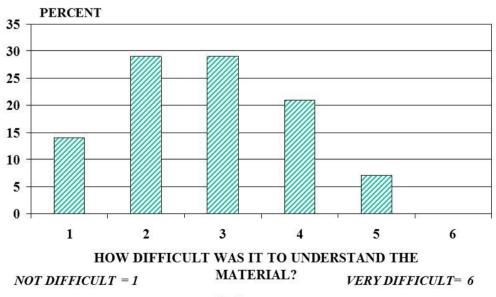
| 1. How much of the material was new to you? | | | | | | | |
|---|--|--------|-----------|----------|---------|-------------|---------------------------------|
| | 1 no new materia | | 2 | 3 | 4 | 5 | 6 all new material |
| 2. | How difficult was it to unders | stand | the ma | aterial? | 1 | | |
| | 1 extremely difficult to understand | | 2 | 3 | 4 | 5 | 6 very easy to understand |
| 3. | How useful will the information | on be | e to you | ı in you | ır job? | | |
| | 1 not at all useful | | 2 | 3 | 4 | 5 extrer | 6 nely useful |
| Addit | ional comments about the COI | NTE | NT: | | | | |
| | dition to considering the TOPI t HOW THE COURSE WAS C | | | | , we ar | e inter | ested in your view |
| 4. | How appropriate was the len | igth c | of this c | course? | 2 | | |
| | 1 much too long | | 2 | 3 | 4 | 5 | 6 much too short |
| 5. How useful were the presentations? | | | | | | | |
| | 1 not at all useful | | 2 | 3 | 4 | 5 extrer | 6 nely useful |
| 6. How useful were the resource materials? | | | | | | | |
| | 1 not at all useful | I | 2 | 3 | 4 | 5 extrer | 6 nely useful |

Please give your comment on how such a course can be conducted better in the future (use reverse of the sheet if necessary)



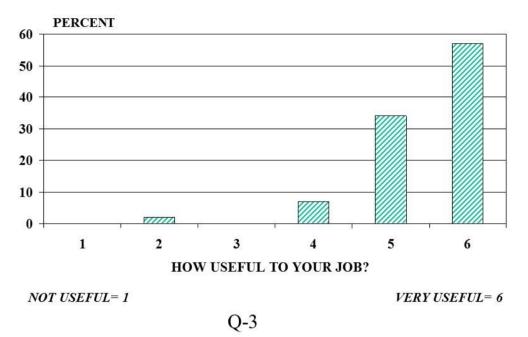
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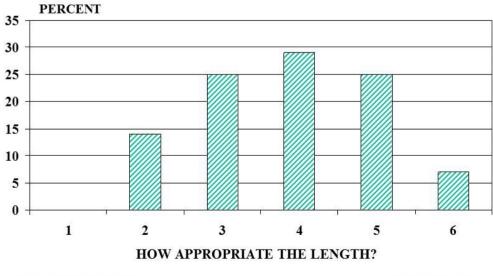


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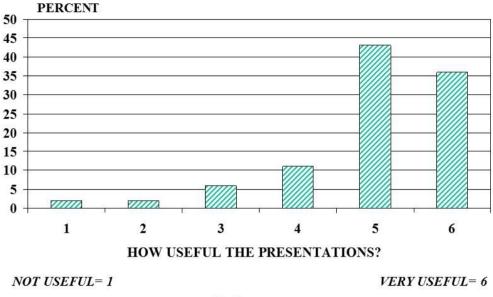


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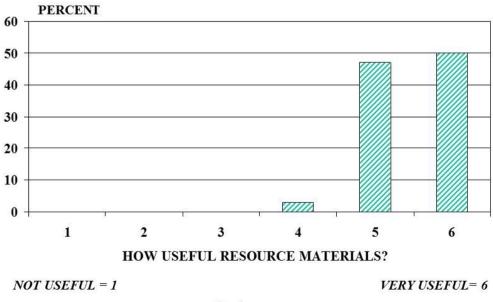
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Q-5

INTERNATIONAL COURSE ON ROAD SAFETY AUDIT AND CONSTRUCTION SAFETY- Dec. 2021



Course Participants List

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ROAD SAFETY AUDIT, ROAD CONSTRUCTION SAFETY, BIOMECHANICS & CRASHWORTHINESS

22 November - 10 December, 2021

This course was designed to bring together professionals working in the area of transportation planning, safety promotion, biomechanics of impact and vehicle crashworthiness, road construction safety to acquaint them with the state-of-the-art information in the field. The contents of the course were especially focussed to give a global perspective to the road safety problem. The participants have been exposed to

- The latest scientific knowledge regarding traffic planning, prevention of traffic accidents and injuries, construction safety issues and current advances in vehicle crashworthiness and restraint systems
- Policies and methods which have been shown to be successful and those that have not worked in the past
- Strategies for starting local programmes in road safety

Geetam Tiwari

K.R. Rao Course Coordinators K.N. Jha

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