University of Zagreb
Faculty of Transport and Traffic Sciences

# Road Safety Summer SCHOOL 2025

A COMPREHENSIVE ROAD SAFETY SUMMER SCHOOL
WHICH INCLUDES THEORETICAL SECTIONS
AND PRACTICAL WORK

twinsafe

Co-funded by
the European Union

## ORGANIZER

Centre of Excellence in Road Safety, Faculty of Transport and Traffic Sciences, University of Zagreb, Vukelićeva 4, 10 000 Zagreb, Croatia

## PROGRAM TITLE

**ROAD SAFETY SUMMER SCHOOL 2025**

## FUNDING

**Horizon Europe Coordination and Support Actions, TWIN-SAFE project under grant agreement No 101159114**

## ORGANIZATION COMMITTEE

1. Asst. Prof. Dario Babić, Ph.D.
2. Prof. Darko Babić, Ph.D.
3. Assoc. Prof. Željko Šarić, Ph.D.
4. Assoc. Prof. Marko Ševrović, Ph.D.
5. Assoc. Prof. Luka Novačko, Ph.D.
6. Mario Fiolić, Ph.D.
7. Lucija Franković, MSc. Traff. Eng.

# JOIN OUR ROAD SAFETY SUMMER SCHOOL

**Faculty of Transport and Traffic Sciences, University of Zagreb** has long been devoted to providing our students with a stimulating environment that encourages them to become active and independent researchers and to develop skills of independent thinking, communication and problem-solving. One of the aims of the Faculty is to also train professionals who possess skills for lifelong learning and a set of high personal and professional values.

**Therefore, it is our great pleasure to invite future road safety experts to participate in Road Safety Summer School 2025!**

During the course of eight days, world-renowned experts from the field will introduce participants to the state-of-the-art findings related to the main factors of road safety: the human factor, the road and its environment, and the vehicle factor.

Besides theoretical part, through practical work (crash test and field inspections) participants will learn the basics of accident analysis and road safety inspection. Of course, it is not all about learning: excursions and extracurricular activities are planned in order for you to enjoy the beautiful and sunny Croatia.

***Join us, learn more to make an impact, meet new friends and colleagues, and make the most out of your summer!***


CRASH TEST ZAGREB 2022
ZAVOD ZA
PROMETNO-TEHNIČKA
VJEŠTAČENJA
mobile ekspert
VOZILA - PLOVILA - STROJEVI

# SUMMARY OF THE SUMMER SCHOOL

In the course of nine days of theoretical and practical work within the *Summer School*, participants will be introduced to the state-of-the-art findings related to the main factors of road safety: the human factor, the road and its environment and the vehicle. The practical part of the summer school will introduce participants to the basics of traffic accident analysis based on the actual data obtained from a crash test. This will be followed by a field road safety inspection.

The main goal of the *Summer School* is to provide a broad and expert training related to advanced concepts and elements of road safety and thus increase the knowledge and competence of participants.

The *Summer School* will last nine days, from 25/08 to 02/09/2025, during which participants will attend theoretical lectures and engage in practical work according to the official Summer School Program. The total workload amounts to **65 hours**: 46 hours will take place on-site (1 hour = 60 minutes), while an additional 19 hours are allocated for individual assignments that participants will complete at home. Upon successful completion of all planned activities, Master's and Ph.D. students will be awarded 2 ECTS credits

***Road Safety Summer School***

***is designed for Master and Ph.D. students in the fields related to road engineering as well as for other concerned experts.***

## CONCEPT AND TARGET GROUP

**8 days**

**65 hours of lectures and practical work**

**Targeted number of participants:**

**20-25**

## APPLICATION REQUIREMENTS

Participants must be enrolled into Master or Ph.D. studies related to road engineering or road safety. Other eligible professionals must be employed in the road safety sector.
A prerequisite for obtaining the *Summer School* Certificate and ECTS credits is attending all theoretical and practical lectures.

## RESPONSIBILITIES OF THE PARTICIPANTS

Attendance to all classes defined by the *Summer School* Program.

## OUTCOMES

Upon completion of the *Summer School*, participants will be able to:
- understand and apply the Safe System Approach to road safety
- compare road safety challenges and strategies across countries
- describe how a human being processes and perceives the information from the environment and how it influences their behaviour and decision making
- identify and apply principles of safe road design and roundabout design
- define key safety systems in vehicles
- describe contemporary road design concepts aimed at increasing road safety
- elaborate on the main factors impacting the overall road safety
- explain the impact of traffic signalling on driver behaviour and thus the overall road safety
- identify different road safety measures and discuss their effectiveness in specific situations
- describe how road crash analysis and road safety audits are conducted
- describe the quality assessment of road infrastructure
- plan and organize road safety research

## LITERATURE

All necessary literature, materials and printouts of presentation will be provided to the participants.

## EVALUATION OF THE SUMMER SCHOOL ACTIVITIES AND PROGRAM

The participants will evaluate the entire *Summer School* via surveys. Entry surveys will provide an insight into the education and work experience of the participants, while exit surveys will assess the quality of *Summer School* lecturers and programs.

## CONFIRMATION OF SUCCESSFUL COMPLETION OF THE SUMMER SCHOOL

After completing the theoretical and practical lectures, participants will receive a certificate of successful completion. The certificate contains the name of the participant, dates of the Summer School, number of lecturing hours, the ECTS credits awarded and the signature of the Dean of the Faculty of Transport and Traffic Sciences, University of Zagreb.

# COSTS AND APPLICATION DEADLINES

The deadline to apply for a scholarship is 31/05/2025 (midnight). Candidates will be informed about the results by 30/06/2025.

The cost of enrolling and attending the *Summer School* is:

**1. Early bird until 1 July 2025**
**a) 600 EUR – for Master students**
**b) 700 EUR – for Ph.D. students**
**c) 900 EUR – others**

**2. Standard - from 1 July 2025**
**a) 700 EUR – for Master students**
**b) 800 EUR – for Ph.D. students**
**c) 1000 EUR – others**

Costs include meals and drinks during the lecturing days, all necessary learning materials and printouts of presentations, as well as all other extracurricular activities defined in the Program. Weekend excursions on August 31st is not covered by the participation fee and should be paid by each participant who wants to partake in them.

# DETAILED PROGRAM

1. DAY

5 HOURS

SCHEDULE

## OPENING DAY - 25 August 2025

**GOAL: To get familiar with the programme, organizers, and the Safe System Approach; to exchange insights on road safety challenges in other countries; to set the stage for international learning and collaboration.**

TIMETABLE:

| | |
|---|---|
| **09:00 - 10:00** | **Registration** |
| **10:00 - 10:10** | Welcome speech of the Dean of the Faculty of Transport and Traffic Sciences *(Assoc. Prof. Marko Šoštarić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia)* |
| **10:10 - 10:30** | Presentation of Faculty of Transport and Traffic Sciences and University of Zagreb *(Vice Dean for Science and External Cooperation - Asst. Prof. Dario Babić, Ph.D.)* |
| **10:30 - 10:50** | Presentation of the summer school program *(welcome note from the organizers)* |
| **10:50 - 11:00** | **Coffee break** |
| **11:00 - 12:00** | Understanding the Safe System Approach – **Part 1** *(Asst. Prof. Dario Babić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia)* |
| **12:00 - 12:10** | **Short break** |
| **12:10 - 13:10** | Understanding the Safe System Approach – **Part 2** *(Asst. Prof. Dario Babić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia)* |
| **13:10 - 13:40** | **Lunch break** |
| **13:40 - 14:40** | Road Safety Across Borders: Insights from Participant Countries – **Part 1** (participants)* |
| **14:40 - 14:50** | **Short break** |
| **14:50 - 16:10** | Road Safety Across Borders: Insights from Participant Countries – **Part 2** (participants)* |

*Participants need to prepare 2-3 slides about the road situation in their respected countries – road safety statistics, main causes of fatalities in road traffic, main challenges etc.

2. DAY

5 HOURS

SCHEDULE

## HUMAN FACTORS - 26 August 2025

**GOAL: To introduce participants with key human factor aspects of road safety, including sensation & perception and attention in driving; to explore how persuasive communication can be used to influence risk-related cognitions and emotions in the context of sensitization-oriented multi-media campaigns.**

### TIMETABLE:

| | |
|---|---|
| **09:00 - 10:30** | The role of sensation & perception in safe driving *(Prof. Kris Brijs, Ph.D. - Transportation Research Institute, Hasselt University, Belgium: lecture)* |
| **10:30 - 10:40** | **Short break** |
| **10:40 - 11:40** | The role of attention in safe driving *(Prof. Kris Brijs, Ph.D. - Transportation Research Institute, Hasselt University, Belgium: lecture)* |
| **11:40 - 12:00** | **Coffee break** |
| **12:00 - 13:00** | Persuasive communication and road safety sensitization: key-concepts, evidence for effectiveness and best practices *(Prof. Kris Brijs, Ph.D. - Transportation Research Institute, Hasselt University, Belgium: guided online self-study)** |
| **13:00 - 13:45** | **Lunch break** |
| **13:45 - 14:45** | Strategies for message design: critical success parameters and illustrative examples *(Prof. Kris Brijs, Ph.D. - Transportation Research Institute, Hasselt University, Belgium: interactive session)* |
| **14:45 - 15:00** | **Short break** |
| **15:00 - 16:00** | Country-specific illustrations of road safety campaigns (Prepared and presented by summer school participants: interactive session)** |

**Guided city tour (free)**

*Participants need to bring their laptops to access the online materials

**Participants need to prepare the materials, i.e. illustrate (preferably by means of visual images and tv-trailers) how sensitization campaigns in their respective countries have tried to influence risk-related opinions & emotions road safety in the past.

3. DAY

6 HOURS

SCHEDULE

## ROAD AND ENVIRONMENT - 27 August 2025

**GOAL: To learn key principles of safe road design and to apply theoretical knowledge through group work; to gain insight into roundabout design and its safety effects in real-world traffic scenarios.**

TIMETABLE:

| | |
|---|---|
| 09:00 - 10:00 | Principles of Safe Road Design – **Part 1** *(Assoc. Prof. Ali Pirdavani, Ph.D. - Faculty of Engineering Technology, University of Hasselt, Belgium)* |
| 10:00 - 10:10 | Short break |
| 10:10 - 11:10 | Principles of Safe Road Design – **Part 2** *(Assoc. Prof. Ali Pirdavani, Ph.D. - Faculty of Engineering Technology, University of Hasselt, Belgium)* |
| 11:10 - 11:25 | Coffee break |
| 11:25 - 12:25 | Principles of Safe Road Design – Group work - **Part 1** *(Assoc. Prof. Ali Pirdavani, Ph.D. - Faculty of Engineering Technology, University of Hasselt, Belgium)* |
| 12:25 - 13:00 | Lunch break |
| 13:00 - 14:00 | Principles of Safe Road Design – Group work - **Part 2** *(Assoc. Prof. Ali Pirdavani, Ph.D. - Faculty of Engineering Technology, University of Hasselt, Belgium)* |
| 14:00 - 14:10 | Short break |
| 14:10 - 15:10 | Roundabout designs and their safety effects – **Part 1** *(Assoc. Prof. Luka Novačko, Ph.D. – Faculty of Transport and Traffic Sciences, University of Zagreb)* |
| 15:10 - 15:20 | Short break |
| 15:20 - 16:20 | Roundabout designs and their safety effects – **Part 1** *(Assoc. Prof. Luka Novačko, Ph.D. – Faculty of Transport and Traffic Sciences, University of Zagreb)* |

Free evening

SCHEDULE

4. DAY

7 HOURS

## ROAD AND ENVIRONMENT - 28 August 2025

**GOAL: To understand the role of high-quality road markings and signs in road safety and their importance for automated and autonomous vehicles; to explore measurement methods, and to gain practical insight into the functioning and safety impact of traditional and smart traffic signal systems.**

### TIMETABLE:

| | |
|---|---|
| **9:00 - 10:30** | Reading the road ahead *(Harald Mosböck – SWARCO AG - VP RMS Region Europe and President of European Union Road Federation – ERF)* |
| **10:30 - 10:45** | **Coffee break** |
| **10:45 - 11:45** | Importance of road markings and their quality on road safety - *(Asst. Prof. Dario Babić, Ph.D. – Faculty of Transport and Traffic Sciences, University of Zagreb)* |
| **11:45 - 11:50** | **Short break** |
| **11:50 - 12:50** | Importance of road signs and their quality on road safety – **Part 1** *(Prof. Darko Babić, Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia)* |
| **12:50 - 13:30** | **Lunch break** |
| **13:30 - 14:15** | Importance of road markings and signs their quality on road safety – **Part 2** – Laboratory demonstration *(Asst. Prof. Dario Babić, Ph.D. – Faculty of Transport and Traffic Sciences, University of Zagreb)* |
| **14:15 - 14:25** | **Short break** |
| **14:25 - 15:00** | Presentation of measuring equipment for quality control of road markings and road signs *(Prof. Darko Babić, Ph.D.; Asst. Prof. Dario Babić, Ph.D.; Mario Fiolić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia)* |
| **15:00 - 15:10** | **Short break** |
| **15:10 - 16:00** | Basic concepts behind traffic lights *(Slaviša Babić, Croatian Roads Ltd.)* |
| **16:00 - 16:10** | **Short break** |
| **16:10 - 17:00** | Smart traffic light and road safety *(Slaviša Babić, Croatian Roads Ltd.)* |

**Free evening**

5. DAY

6 HOURS

SCHEDULE

## ROAD AND ENVIRONMENT - 29 August 2025

**GOAL: To extend participants' knowledge of road safety elements and work zone protection; to familiarize participants with different road restrain systems; to introduce participants to safe road design for motorcyclists; familiarize participants with road safety on level crossings.**

### TIMETABLE:

| | |
|---|---|
| **09:00 - 10:00** | Road Restraint Systems – The use of Crash cushions on forgiving highways *(Valeria Di Giacomo- Lindsay, The Netherlands)* |
| **10:00 - 10:10** | **Short break** |
| **10:10 - 11:10** | Work Zone Safety – Temporary road marking, positive protection and TMAs *(Valeria Di Giacomo - Lindsay, The Netherlands)* |
| **11:10 - 11:25** | **Coffee break** |
| **11:25 - 12:25** | Road Connect – Asset monitoring *(Valeria Di Giacomo - Lindsay, The Netherlands)* |
| **12:25 - 13:00** | **Lunch break** |
| **13:00 - 14:00** | Smart Roadside Guardrails for Improved Road Safety - Case Study for Motorcyclist Safety (*Darko Žvan – Micro-Link Ltd., Croatia)* |
| **14:00 - 14:10** | **Short break** |
| **14:10 - 15:10** | Road design and motorcycle safety *(Prof. Tomaž Tollazzi, Ph.D. - Faculty of Civil Engineering, Transportation Engineering and Architecture, University of Maribor, Slovenia)* |
| **15:10 - 15:20** | **Short break** |
| **15:20 - 16:20** | Level Crossing: To Cross or Not to Cross? *(Prof. Danijela Barić, Ph.D. – Faculty of Transport and Traffic Sciences, University of Zagreb)* |

**Free evening**

6. DAY

4 HOURS

SCHEDULE

## CRASH ANALYSIS - 30 August 2025

**GOAL: To explore the role of event data recorders in traffic accident analysis; to introduce participants to impact of vehicle technical inspections on road safety; to introduce participants to the Black Spot Identification; to show participants a real crash test at a test site.**

### TIMETABLE:

| | |
|---|---|
| **09:00 - 10:00** | Traffic accidents analysis using data from Event Data Recorder *(Assoc. Prof. Željko Šarić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb)* |
| **10:00 - 10:15** | **Coffee break** |
| **10:15 - 11:15** | Impact of vehicle technical inspections on road traffic safety *(Prof. Goran Zovak, Ph.D. - Center for Vehicles of Croatia / Faculty of Transport and Traffic Sciences, University of Zagreb)* |
| **11:15 - 11:30** | **Coffee break** |
| **11:30 - 12:30** | Black Spot Identification through Road Safety Inspection and Crash Analysis *(Assoc. Prof. Željko Šarić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb)* |
| **12:30 - 13:30** | **Lunch break** |
| **13:30 - 14:30** | Crash test |

**Free evening**

# Sunday
## 31 August 2025

**Optional extracurricular activities:**

1. Excursion to the Plitvice Lakes National Park
2. Excursion to Zagorje County, visit to Baroque castles, visit to Krapina Neanderthal Museum
3. Excursion to the City of Karlovac and Ozalj

*Costs of the optional extracurricular activities are not included in the participation fee

***Use your free time to relax, explore, and make new friends.***

SCHEDULE

7. DAY

6 HOURS

## ROAD SAFETY MANAGEMENT – 1 September 2025

**GOAL: To explore key aspects of road safety through case studies; to learn how to apply crash modification factors, to assess safety performance, to understand the framework of road safety audits; to gain insights into global practices through the iRAP assessment methodology.**

TIMETABLE:

| | |
|---|---|
| **09:00 - 10:00** | Black spots: Croatian case studies (*Slaviša Babić, MSc. Eng. - Croatian Roads, Ltd.)* |
| **10:00 - 10:10** | **Short break** |
| **10:10 - 11:10** | Crash modification factors *(Prof. Carmelo D'Agostino, Ph.D. - Lund University, Sweden)* |
| **11:10 - 11:25** | **Coffee break** |
| **11:25 - 12:25** | How to measure safety? *(Attila Borsos, Ph.D. - University of Győr, Hungary)* |
| **12:25 - 13:00** | **Lunch break** |
| **13:00 - 14:00** | Basic Framework for Road safety audits & inspection (*Assoc. prof. Attila Borsos, Ph.D. - University of Győr, Hungary)* |
| **14:00 - 14:10** | **Short break** |
| **14:10 – 15: 10** | First-hand experiences of road safety audits *(Assoc. prof. Dániel Miletics, Ph.D. - University of Győr, Hungary)* |
| **15:10 - 14:20** | **Short break** |
| **14:20 – 16:00** | iRAP – experience with road safety assessment worldwide *(Assoc. Prof. Marko Ševrović, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia)* |

**Free evening**

8. DAY

7 HOURS

SCHEDULE

## ROAD SAFETY MANAGEMENT – FIELD WORK – 2 September 2025

**GOAL: To use the knowledge acquired in theoretical lectures to conduct a road safety inspection on a real road; to identify potential safety issues and discuss potential solutions based on group work.**

### TIMETABLE:

| | |
|---|---|
| **09:00 - 13:00** | Road Safety Inspection – field work *(Juraj Leonard Vertlberg, MSc. Traff. Eng.; Marko Švajda, MSc. Traff. Eng. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia)* |
| **13:00 - 13:30** | **Lunch break** |
| **13:30 - 16:30** | Road Safety Inspection – Group work on a case study *(Juraj Leonard Vertlberg, MSc. Traff. Eng.; Marko Švajda, MSc. Traff. Eng. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia)* |
| **20:00** | **Gala dinner** (costs included in the participation fee) |

# NOTES AND CONTACTS

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# LECTURERS

1. **Harald Mosböck - SWARCO AG - VP RMS Region Europe and President of European Union Road Federation – ERF**
   Expert in the field of road markings
2. **Prof. Kris Brijs, Ph.D. - Transportation Research Institute, Hasselt University, Belgium**
   Expert in traffic psychology
3. **Asst. prof. Dario Babić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**
   Expert in the field of traffic signalling and road safety
4. **Prof. Darko Babić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**
   Expert in the field of traffic signalling and road safety
5. **Slaviša Babić, MSc. Eng. - Croatian Roads Ltd., Croatia**
   Expert in the field of road safety
6. **Prof. Carmelo D'Agostino, Ph.D. - Lund University, Sweden**
   Expert in the field of road safety and crash modification factors
7. **Assoc. Prof. Marko Ševrović, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**
   Expert in the field of road safety and road safety inspection
8. **Assoc. Prof. Marko Šoštarić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**
   Expert in the field of road safety and road safety inspection
9. **Assoc. Prof. Ali Pirdavani, Ph.D. - Faculty of Engineering Technology, University of Hasselt, Belgium**
   Expert in the field of road design and safety
10. **Assoc. Prof. Luka Novačko, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb**
    Expert in the field of road design and road safety
11. **Prof. Tomaž Tollazzi, Ph.D. - Faculty of Civil Engineering, Transportation Engineering and Architecture, University of Maribor, Slovenia**
    Expert in the field of road design and road safety
12. **Darko Žvan - MICRO-LINK Ltd.**
    Expert in the field of intelligent sensors
13. **Valeria Di Giacomo – Lindsay Corporation**
    Expert in the field of safety elements related to road infrastructure
14. **Assoc. Prof. Željko Šarić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**
    Expert in the field of road safety and accidents analysis
15. **Prof. Goran Zovak, Ph.D. - Center for Vehicles of Croatia - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**
    Expert in the field of road safety and accidents analysis
16. **Attila Borsos, Ph.D. - University of Győr, Hungary**
    Expert in the field of road safety

17. **Dániel Miletics, Ph.D. - University of Győr, Hungary**
    Expert in the field of road safety, certified road safety auditor
18. **Prof. Danijela Barić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**
    Expert in the field of multi-criteria decision-making and accident prevention at level crossings
19. **Tomislav Kučinić, MSc. Traff. Eng. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**
    Expert in the field of accidents analysis
20. **Mario Fiolić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**
    Expert in the field of traffic signalling
21. **Marijan Jakovljević, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**
    Expert in the field of road safety and road safety inspection
22. **Juraj Leonard Vertlberg, MSc. Traff. Eng.**
    Expert in the field of road safety and road safety inspection
23. **Marko Švajda, MSc. Traff. Eng.**
    Expert in the field of road safety and road safety inspection

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# Road Safety *Summer* SCHOOL



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Level 5 - Society


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