

# **RS** Road **Safety** *Summer* SCHOOL 2021



University of Zagreb  
Faculty of Transport and  
Traffic Sciences

30 August - 7 September  
ZAGREB, CROATIA

**2**  
ECTS  
credits



***A comprehensive road safety summer school which includes theoretical sections and practical work***

# 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 2021!**

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!**

## ORGANIZER



Faculty of Transport  
and Traffic Sciences  
*University of Zagreb*  
Vukelićeva 4  
10 000 Zagreb  
Croatia

## PROGRAM NAME

ROAD SAFETY  
SUMMER SCHOOL 2021

## ORGANIZATION COMMITTEE

1. Assoc. prof. Darko Babić, Ph.D.
2. Prof. Anđelko Ščukanec, Ph.D.
3. Dario Babić, Ph.D.
4. Asst. prof. Željko Šarić, Ph.D.
5. Asst. prof. Marko Ševrović, Ph.D.
6. Mario Fiolić, mag. ing. traff.

**prof. Tomislav Josip Mlinarić, Ph.D.,**  
*Dean of the Faculty of Transport  
and Traffic Sciences*





## SUMMARY OF THE SUMMER SCHOOL

Throughout the summer school in the course of eight days of theoretical and practical work, 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. In addition, a field road safety inspection will be organized.

The main goal of the summer school is to provide a broad and expert education related to advanced concepts and elements of road safety and thus increase the knowledge and competence of participants.

The summer school will last eight working days, from 30/08 – 08/09/2021, during which participants will attend theoretical lectures and do practical work according to the Summer School Program. The total duration of the summer school is **56 hours** (1 hour = 60 min), which represents **2 ECTS** credits that Master and Ph.D. students will receive after completing all the planned activities.

“ **Road Safety Summer School is designed for master and Ph.D. students in road engineering and other experts from the field.** ”

## SUMMER SCHOOL CONCEPT AND TARGET GROUP

**Theoretical part**  
**6 days**  
in total **44.5 hours** of lectures

**Practical part**  
**2 day**  
in total **11.5 hours** of practical work

**Targeted number of participants:**  
**15-20**

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## APPLICATION CONDITIONS

Participants must be enrolled in a Master or Ph.D. study 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.

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## RESPONSIBILITIES OF THE PARTICIPANTS

Attendance to all classes defined by the summer school program.

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## OUTCOMES

Upon completion of the summer school, participants will be able to:

- describe how a human processes and perceives the information from the environment and how it influences his or her behaviour and decision making
- describe contemporary road design concepts aimed at increasing road safety
- explain the impact of traffic signalling on driver behaviour and thus the overall road safety
- define key safety systems in vehicles
- describe how road accident analysis and road safety audits are conducted

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## LITERATURE

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

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## 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 cost of enrolling and attending the summer school is:

- 1. Early bird until 01.07.2021.**
  - a) 600 EUR – for Master students
  - b) 700 EUR – for Ph.D. students
  - c) 900 EUR – others
- 2. Standard - from 01.07. 15.08.2021.**
  - 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 4 and 5 September are not covered by the participation fee and should be paid by each participant who wants to partake in them.

## WIN SCHOLARSHIP PROVIDED BY OUR SPONSORS



**YOUR APPLICATION MUST INCLUDE:**

1. MOTIVATIONAL VIDEO
2. YOUR RESUME IN A PDF FORMAT
3. APPLICATION FORM

## BECOME AN AMBASSADOR

**1 x FULL SCHOLARSHIP**

SWARCO ROAD MARKINGS AMBASSADOR

**1 x FULL SCHOLARSHIP**

3M TRAFFIC SIGNS AMBASSADOR

**1 x FULL SCHOLARSHIP**

FACULTY OF TRANSPORT AND TRAFFIC SCIENCES AMBASSADOR

FILL APPLICATION FORM ONLINE

[www.roadsafety-summer-school.eu](http://www.roadsafety-summer-school.eu)





# DETAILED SUMMER SCHOOL PROGRAM

**1.**

DAY

3.5  
HOURS

SCHEDULE

## INTRODUCTION DAY - 30.08.2021.

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**GOAL:** To review the state of road safety in the EU and introduce the participants to contemporary road safety strategies

### TIMETABLE:

9:00 – 10:00	<b>Registration</b>
10:00 – 10:15	Welcome speech of the Dean of the Faculty of Transport and Traffic Sciences and invited guests <i>(Prof. Tomislav Josip Mlinarić, Ph.D.)</i>
10:15 – 11:00	Presentation of Faculty of Transport and Traffic Sciences and University of Zagreb <i>(Vice Dean – Asst. prof. Marko Šoštarić, Ph.D., Asst. prof. Ivan Grgurević, Ph.D.)</i>
11:00 – 11:30	Presentation of the summer school program <i>(welcome note from organizers, Faculty of Transport and Traffic Sciences, University of Zagreb)</i>
11:30 – 12:00	<b>Coffee break</b>
12:00 – 13:30	Overview of the “Decade of Action for Road Safety 2010 – 2020” and future goals <i>(Brendan Halleman, Vice president of International Road Federation - IRF)</i>
13:30 – 14:30	<b>Lunch break</b>
14:30 – 16:00	Contemporary strategies for increasing road safety <i>(Asst. prof. Marko Ševrović, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia)</i>
19:00	<b>Welcome Dinner</b> (costs included in the participation fee)

# 2.

## DAY

### 7 HOURS

#### SCHEDULE

### HUMAN FACTOR - 31.08.2021.

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**GOAL:** To introduce the participants to human perception and how visual information in road traffic is processed; to familiarize the participants with the patterns of road user's behavior and how they make decisions in different traffic situations and conditions.

#### TIMETABLE:

- 9:00 – 10:15** Perception and other relevant performance factors for safe driving – **Part 1** (*Asst. prof. Matúš Šucha, Ph.D. - Department of Psychology, Palacký University Olomouc*)
- 15:00 – 10:20** **Short break**
- 10:20 – 11:35 Perception and other relevant performance factors for safe driving – **Part 2** (*Asst. prof. Matúš Šucha, Ph.D. - Department of Psychology, Palacký University Olomouc*)
- 11:35 – 11:50** **Coffee break**
- 11:50 – 12:50 The role of personality and motivation factors on risky driving – (*Asst. prof. Matúš Šucha, Ph.D. - Department of Psychology, Palacký University Olomouc*)
- 12:50 – 13:30** **Lunch break**
- 13:30 – 13:45 Distractions (*Dario Babić, Ph.D. – Faculty of Transport and Traffic Sciences, University of Zagreb*)
- 13:45 – 14:50** **Short break**
- 14:50 – 15:50 Theory of speed enforcement and safety risk of speeding (*Philip J. Wijers - Sensys Gatso Group*)
- 15:50 – 16:00** **Coffee break**
- 16:00 – 17:15 Speed enforcement – Practical issues (*Philip J. Wijers - Sensys Gatso Group*)
- Free evening**



# 3.

## DAY

### 8 HOURS

#### SCHEDULE

### ROAD AND ENVIRONMENT - 01.09.2021.

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**GOAL:** To extend participants' knowledge of different concepts of safe road design; introduce and elaborate the contemporary concept of self-explaining and forgiving roads; present the application of a driving simulator in road design and safety analysis .

#### TIMETABLE:

- 9:00 – 10:15** Safe road design – **Part 1** (*Assoc. prof. Timothy Gates, Ph.D. – Michigan State University, USA*)
- 10:15 – 10:20** **Short break**
- 10:20 – 11:35** Safe road design – **Part 2** (*Assoc. prof. Timothy Gates, Ph.D. – Michigan State University, USA*)
- 11:35 – 11:50** **Coffee break**
- 11:50 – 12:50** Concept of self-explaining and forgiving roads – **Part 1** (*Asst. prof. Ali Pirdavani, Ph.D. - Faculty of Engineering Technology, University of Hasselt, Belgium*)
- 12:50 – 13:30** **Lunch break**
- 13:30 – 14:30** Concept of self-explaining and forgiving roads – **Part 2** (*Asst. prof. Ali Pirdavani, Ph.D. - Faculty of Engineering Technology, University of Hasselt, Belgium*)
- 14:30 – 14:40** **Short break**
- 14:40 – 15:55** Application of driving simulator in road design and safety analysis (*Asst. Prof. Ali Pirdavani, Ph.D. - Faculty of Engineering Technology, University of Hasselt, Belgium*)
- 15:55 – 16:10** **Coffee break**
- 16:10 – 17:25** Road design and motorcycle safety (*Prof. Tomaž Tollazi, Ph.D. - Faculty of Civil Engineering, Transportation Engineering and Architecture, University of Maribor, Slovenia*)
- 17:25 – 17:30** **Short break**
- 17:30 – 18:30** Forgiving Roadside (*Prof. Tomaž Tollazi, Ph.D. - Faculty of Civil Engineering, Transportation Engineering and Architecture, University of Maribor, Slovenia*)

Free evening

# 4.

## DAY

### 7 HOURS

#### SCHEDULE

### ROAD AND ENVIRONMENT - 02.09.2021.

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**GOAL:** : To extend participants' knowledge of safe road infrastructure; evaluate the effect of different low-cost measures related to traffic signalling on driver behavior and overall road safety; familiarize participants with road safety assessment program (iRAP) and its application worldwide; acquaint participants with the problems related to road design and vulnerable road users.

#### TIMETABLE:

9:00 – 10:00	Towards a safer road infrastructure ( <i>Assoc. Prof. Darko Babić, Ph.D. – Faculty of Transport and Traffic Sciences, University of Zagreb</i> )
10:00 – 10:05	<b>Short break</b>
10:05 – 11:05	Importance of traffic signalling and it's quality on road safety – <b>Part 1</b> ( <i>Dario Babić, Ph.D. – Faculty of Transport and Traffic Sciences, University of Zagreb</i> )
11:05 – 11:30	<b>Coffee break</b>
11:30 – 12:30	Importance of traffic signalling and it's quality on road safety – <b>Part 2</b> ( <i>Rik Nuyttens – 3M</i> )
12:30 – 13:10	<b>Lunch break</b>
13:10 – 14:10	iRAP –experience with road safety assessment worldwide – <b>Part 1</b> ( <i>Asst. Prof. Marko Ševrović, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia</i> )
14:10 – 14:15	<b>Short break</b>
14:15 – 15:15	iRAP – experience with road safety assessment worldwide – <b>Part 2</b> ( <i>Asst. Prof. Marko Ševrović, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia</i> )
15:15 – 15:30	<b>Coffee break</b>
15:30 – 16:30	Best practices, innovations, training approaches and processes for staff education on road work zone safety – <b>Part 1</b> ( <i>David Kollenhofer –ASFINAG, Austria</i> )
16:30 – 16:35	<b>Short break</b>
16:35 – 17:35	Best practices, innovations, training approaches and processes for staff education on road work zone safety – <b>Part 2</b> ( <i>David Kollenhofer – ASFINAG, Austria</i> )
18:30	Guided tour of the City of Zagreb (costs included in the participation fee)

# 5.

## DAY

### 8 HOURS

#### SCHEDULE

### VEHICLE - 03.09.2021.

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**GOAL:** To give a preview of current state-of-the-art technologies in vehicles aimed at increasing road safety; to provide a basic knowledge of autonomous vehicles and related problems.

#### TIMETABLE:

<b>9:00 – 10:15</b>	Reading the Road ahead ( <i>Harald Mosböck – Head of RMS Division Europe, SWARCO AG and Vice President of European Union Road Federation – ERF</i> )
<b>10:15 – 10:20</b>	<b>Short break</b>
<b>10:20 – 11:20</b>	ADAS systems – <b>Part 1</b> ( <i>Assoc. prof. Arno Eichberger, Ph.D. - Graz University of Technology, Austria</i> )
<b>11:05 – 11:20</b>	<b>Coffee break</b>
<b>11:30 – 12:30</b>	ADAS systems – <b>Part 2</b> ( <i>Assoc. prof. Arno Eichberger, Ph.D. - Graz University of Technology, Austria</i> )
<b>12:30 – 13:15</b>	<b>Lunch break</b>
<b>13:15 – 14:30</b>	Perception sensors for autonomous driving with practical demonstration ( <i>Assoc. Prof. Arno Eichberger, Ph.D. - Graz University of Technology, Austria</i> )
<b>14:30 – 14:35</b>	<b>Short break</b>
<b>14:35 – 15:35</b>	ADAS Validation on Vehicle Level ( <i>Andrej Čop – Magna Steyr Fahrzeugtechnik</i> )
<b>15:35 – 15:50</b>	<b>Coffee break</b>
<b>15:50 – 17:05</b>	Representative of automotive industry and sensors technology – To be defined
<b>17:05 – 17:10</b>	<b>Short break</b>
<b>17:10 – 18:25</b>	Representative of automotive industry and sensors technology – To be defined
	<b>Free evening</b>





## ***Weekend*** **04. – 05.09.2021.**

Optional extracurricular activities:

1. Excursion to National park Plitvice
2. Excursion to Zagorje county, visit to the castles from the baroque era, visit to the Krapina Neanderthal Museum
3. Excursion to City of Karlovac and Ozalj

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



# 6.

## DAY

### 8 HOURS

#### SCHEDULE

### ACCIDENT ANALYSIS - 06.09.2021.

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**GOAL:** Introducing the participants to the methodologies of traffic accident analysis and expert evaluation based on the actual data obtained by the crash test.

#### TIMETABLE:

- 9:00 – 10:15** Traffic accidents analysis using data from event data recorder (*Asst. prof. Željko Šarić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb*)
- 10:15 – 10:20** **Short break**
- 10:20 - 11:35** Before-and-after analysis of highway safety countermeasures including Bayesian methods (*Assoc. Prof. Timothy Gates, Ph.D. – Michigan State University, USA*)
- 11:35 – 11:50** **Coffee break**
- 11:50 – 12:50** 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*)
- 12:50 – 13:30** **Lunch break**
- 13:30 – 14:30** Crash tests
- 14:30 – 15:45** Traffic accident reconstruction with PC Crash **Part 1** (*Tomislav Kučinić - Faculty of Transport and Traffic Sciences, University of Zagreb*)
- 15:45-15:50** **Short break**
- 15:50 – 16:50** Traffic accident reconstruction with PC Crash **Part 2** (*Tomislav Kučinić - Faculty of Transport and Traffic Sciences, University of Zagreb*)
- 16:50 – 17:00** **Coffee break**
- 17:00 – 18:15** Traffic accident reconstruction with PC Crash **Part 3** (*Tomislav Kučinić - Faculty of Transport and Traffic Sciences, University of Zagreb*)

**Free evening**

# 7.

## DAY

### 7.5 HOURS

#### SCHEDULE

### ROAD SAFETY INSPECTION - 07.09.2021.

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**GOAL:** Introduction of the participants with the basic concepts and regulations related to road safety inspection in the EU. Also, the goal is to familiarize participants with the road safety inspection process.

#### TIMETABLE:

- 08:00 – 9:30** Network screening to identify crash hot spots  
(*Assoc. prof. Timothy Gates, Ph.D. – Michigan State University, USA*)
- 9:30 – 9:40** **Short break**
- 09:40 – 11:10** Black spots: Croatian case studies  
(*Slaviša Babić, Croatian Roads, Ltd.*)
- 11:10 – 11:30** **Coffee break**
- 11:30 - 12:30** Basic concepts and legal framework for road safety inspection  
(*Asst. prof. Marko Ševrović, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia*)
- 12:30 – 13:30** **Lunch break**
- 13:30 – 17:00** Presentation of different equipment for measuring the quality of road elements (*Slaviša Babić, Croatian Roads, Ltd.; Assoc. prof. Darko Babić, Ph.D.; Dario Babić, Ph.D.; Mario Fiolić, mag. ing. traff. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia*)

**Free evening**



# 8.

## DAY

### 7 HOURS

#### SCHEDULE

### ROAD SAFETY INSPECTION – FIELD WORK - 08.09.2021.

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**GOAL:** Introduce participants to the basic concepts and regulations related to road safety inspection in the EU; familiarize them to the road safety inspection process.

#### TIMETABLE:

- 09:00 – 13:00** Road Safety Inspection – field work (*Asst. Prof. Željko Šarić, Ph.D.; Asst. Prof. Marko Ševrović; Assoc. Prof. Darko Babić, Ph.D.; Dario Babić, Ph.D.; Marijan Jakovljević, Ph.D.; Mario Fiolić - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia*)
- 13:00 – 13:40** **Lunch break**
- 13:40 – 15:10** Road Safety Inspection – Group work on a case study – **Part 1** (*Asst. Prof. Marko Ševrović, Ph.D. & Marijan Jakovljević, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia*)
- 15:00 – 15:30** **Coffee break**
- 15:30 – 17:00** Road Safety Inspection – Group work on a case study – **Part 2** (*Asst. Prof. Marko Ševrović, Ph.D. & Marijan Jakovljević, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia*)
- 20:00** **Gala dinner** (costs included in the participation fee)

# LECTURERS

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- 1. Brendan Halleman - Vice President of International Road Federation (IRF)**  
Expert in the field of road safety policy
- 2. Asst. 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
- 3. Asst. Prof. Matúš Šucha, Ph.D. - Department of Psychology, Palacký University Olomouc**  
Expert in traffic psychology
- 4. Philip J. Wijers - Sensys Gatso Group**  
Expert in the field of speed enforcement
- 5. Assoc. Prof. Timothy Gates, Ph.D. – Michigan State University, USA**  
Expert in the field of road design and safety
- 6. Asst. Prof. Ali Pirdavani, Ph.D. - Faculty of Engineering Technology, University of Hasselt, Belgium**  
Expert in the field of road design and safety
- 7. Prof. Tomaž Tollazi, Ph.D. - Faculty of Civil Engineering, Transportation Engineering and Architecture, University of Maribor, Slovenia**  
Expert in the field of road safety
- 8. Assoc. 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
- 9. Dario Babić, Ph.D. - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**  
Expert in the field of traffic signalling and road safety
- 10. Rik Nuyttens – 3M**  
Expert in the field of traffic signalling
- 11. David Kollenhofer - Project Consultant at ASFINAG – Federal Agency for Motorways and Expressways**  
Expert in the field of road operation and maintenance
- 12. Harald Mosböck - Head of RMS Division Europe, SWARCO AG and Vice President of European Union Road Federation – ERF**  
Expert in the field of road markings
- 13. Assoc. Prof. Arno Eichberger, Ph.D. - Graz University of Technology, Austria**  
Expert in automotive engineering and autonomous vehicles

# LECTURERS

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- 14. Andrej Čop – Magna Steyr Fahrzeugtechnik**  
Expert in the field of vehicle safety
- 15. Asst. 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
- 16. Prof. Goran Zovak, Ph.D. – Center for Vehicles of Croatia / Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**  
Expert the field of road safety and accidents analysis
- 17. Tomislav Kučinić - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**  
Expert in the field of accidents analysis
- 18. Slaviša Babić, Eng. – Croatian Roads Ltd., Croatia**  
Expert in the field of road safety
- 19. Mario Fiolić - Faculty of Transport and Traffic Sciences, University of Zagreb, Croatia**  
Expert in the field of traffic signalling
- 20. 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



# SPONSORS

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**Road  
Safety  
Summer**  
SCHOOL 2021

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