



# EUROSTRUCT

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EUROPEAN ASSOCIATION ON  
QUALITY CONTROL OF BRIDGES AND STRUCTURES

**TRAINING SCHOOL**  
University College Dublin

2 September – 4 September, 2020

# TRAINING SCHOOL DUBLIN

## EUROSTRUCT

EUROPEAN ASSOCIATION ON  
QUALITY CONTROL OF BRIDGES AND STRUCTURES

DATE OF EVENT  
2–4 September 2020

School of Mechanical and Materials Engineering  
University College Dublin  
Dublin  
Ireland

### ACTION CONTACTS

EuroStruct  
Local organizer  
Action websites

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## 1. INTRODUCTION

The objective of the EUROSTRUCT Training School Dublin is the exchange of knowledge and experience in quality control, to encourage awareness and responsibility of structural engineers towards the needs of society, and to encourage actions necessary for progress of quality control in bridges and structures;

The school aims at teaching the most recent developments on performance indicators and performance goals, focusing on the training on some contemporary topics around this field.

In this training school participants will be familiarized with some contemporary topics and will introduce them to a range of bridge management, inspection, performance indicators and assessment approaches along with a clear idea around the different aspects of risk. The training school will provide targeted training for doctoral researchers in these topics, including hands-on problem-solving sessions. Participants will be able to use the knowledge and training for their research and are expected in future to influence how they interact with and contribute to the risk and management aspects of roadway bridges.

The event is organised by the Dynamical Systems and Risk Laboratory, School of Mechanical and Materials Engineering, University College Dublin, Ireland.

Venue: Online  
Time: 2 – 4 September 2020  
Capacity: 10-25 trainees  
Online: 350 € per person

| Local Organizer  | Co-Organizer   |
|--|--|
| <b>Vikram Pakrashi</b><br><i>Dynamical Systems and Risk Laboratory,<br/>School of Mechanical and Materials Engineering,<br/>University College Dublin, Ireland</i> | <b>José Matos</b><br><i>University of Minho,<br/>School of Engineering, Civil Engineering<br/>Department, Guimarães, Portugal.</i> |
| <b>Basuraj Bhowmik</b><br><i>Dynamical Systems and Risk Laboratory,<br/>School of Mechanical and Materials Engineering,<br/>University College Dublin, Ireland</i> |  |
| <b>Beatriz Martinez-Pastor</b><br><i>School of Civil Engineering,<br/>University College Dublin, Ireland</i>   |  |

Trainers list of experts:

- Prof. Vikram Pakrashi, Dynamical Systems and Risk Laboratory, School of Mechanical and Materials Engineering, University College Dublin, Ireland
- Prof. José Matos, Department of Civil Engineering, School of Engineering, University of Minho, Portugal
- Prof. Rade Hajdin, Faculty of Civil Engineering, University of Belgrade, Serbia
- Prof. Beatriz Martinez-Pastor, School of Civil Engineering, University College Dublin, Ireland
- Prof. Basuraj Bhowmik, School of Mechanical and Materials Engineering, University College Dublin, Ireland

This workshop tries to harmonize a common decision-making framework through practical examples acknowledging the differences that may exist for practical implementation. The hands-on approach of the case studies and methodologies are expected to create an in-depth understanding around decision-making approaches for bridges and promote a healthy discussion around the needs, approaches and interpretation of information obtained from individual bridges and bridge networks. Rationalizing the process of arriving at safe and efficient management of bridge assets will also be focused on in this training school.

The training school attempts to:

- Provide practical and modern tools and impart them on the trainees
- Act as a formal platform for dialogue, discussion and consensus-development of bridge networks for trainees with diverse technical and experiential backgrounds
- Increasing the impact of research on policy makers, regulatory bodies and national decision makers as well as the private sector.

The training school addresses the core value of EUROSTRUCT by promoting tangible and meaningful interaction among engineers, owners, inspectors and researchers to arrive at an EU-wide approach for managing the performance and safety of its bridges and the connection of such approaches to how such maintenance and management is carried out at a global level.

## 2. PROGRAMME

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### Wednesday, September 2<sup>nd</sup>, 2020

**14:00 – 14:30** *Registration*

**14:30 – 14:45** Introduction and welcoming  
by *Vikram Pakrashi (Organizer) + Jose Matos*

**14:45 – 15:15** Introduction to performance-based assessment of bridges  
Detailed Program

- COST Action TU 1406 - General issues, Motivation and Main Objectives and Need for a Quality Control Plan for European bridges
- Key outcomes from the Action
- Motivation of the Training School

by *Jose Matos*

*Learning Outcomes*

*Capabilities associated with performance indicators and performance-based assessment of existing highway bridges:*

- i. *Characterization of performance indicators*
- ii. *Definition of performance indicators*
- iii. *Characterization of performance indicators for the structural assessment and maintenance planning;*
- iv. *From performance indicators to KPI.*

*Bibliography (i) COST TU1406 WG5 Report;*

*(ii) Summary of COST Action Final Meeting Panel Discussions*

**15:15 – 16:30** Quality Control for Existing bridges – Approach and Application

- Performance goals and their quantification
- Presentation of COST TU1406 Quality Control Framework
- Inspections procedure and results
- Discussions on interpretation and decision-making

by *Rade Hajdin*

**16:30 – 16:45** *Coffee break*

**16:45 – 17:15** Dividing into groups and presenting the Bridge Case Studies  
by *Beatriz Martinez Pastor, Vikram Pakrashi*

**17:15 – 18:15** Preparing Virtual ID and folios for Bridge Case Studies  
by *Participants + Basuraj Bhowmik*

**18:15 – 19:00** Future Perspectives: Concepts around Monitoring and Resilience  
by *Basuraj Bhowmik and Beatriz Martinez Pastor*

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### Thursday, September 3<sup>rd</sup>, 2020

**07:30 – 12:30** Implementation of Bridge Case Studies for each group  
by *Participants + Beatriz Martinez Pastor, Vikram Pakrashi, Basuraj Bhowmik*

**12:30 – 13:30** *Lunch*

**13:30 – 14:30** BIM in Bridge Inspection and Assessment  
by *Rade Hajdin*

**14:30 – 16:00** Implementation of Bridge Case Studies for each group  
by *Participants + Rade Hajdin, Jose Matos, Vikram Pakrashi*

**16:00 – 16:15** *Coffee Break*

**16:15 – 18:00** Analyses of case studies Implementation: Interpretation of Results  
by *Participants + Rade Hajdin, Jose Matos, Basuraj Bhowmik*

**20:00 – 21:30** *Networking dinner/Breakout Online Networking (“Beer”-tual meeting)*

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**Friday, September 4<sup>th</sup>, 2020**

**09:00 – 10:00** Analyses of Bridge case studies: Understanding Decision-Making Challenges  
*by Participants + Rade Hajdin, Jose Matos, Vikram Pakrashi*

**10:00 – 10:15** *Coffee Break*

**10:15 – 12:30** Preparation of workgroup report & live discussion – part 1  
*by Participants + Rade Hajdin, Jose Matos, Vikram Pakrashi*

**12:30 – 13:30** *Lunch Break*

**13:30 – 15:15** Preparation of workgroup report & live discussion – part 2  
*by Participants + Rade Hajdin, Jose Matos, Vikram Pakrashi*

**15:15 – 15:30** *Coffee break*

**15:30 – 17:45** Workgroup presentations  
*by Participants*

**17:45 – 18:00** Summary and conclusions. Submittal of workgroup reports  
*by Vikram Pakrashi*

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[EUROSTRUCT.ORG](http://EUROSTRUCT.ORG)