



TU1406

COST ACTION

QUALITY SPECIFICATIONS FOR ROADWAY BRIDGES,
STANDARDIZATION AT A EUROPEAN LEVEL



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COST Office through a
European Commission contract



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Programme



Training School - Prague

Training School on Bridge Quality Control

25th – 28th September, 2017
Faculty of Civil Engineering CTU in Prague
Prague, Czech Republic

ACTION CONTACTS

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Action websites

CONTENTS

1.	Training School	4
1.1.	Objectives.....	4
1.2.	Scope	4
1.3.	About Prague	4
1.4.	Programme.....	5
1.5.	Location, Dates and Travelling	7
1.5.1.	Location and Date	7
1.5.2.	How to get to CTU.....	8
1.6.	Accommodation.....	9
1.7.	Committees	9
1.7.1.	Scientific AND ORGANIZING Committee	9
1.7.2.	Secretariat.....	9
1.7.3.	Local Organizers	10
2.	How to participate	11
2.1.	Registration	11
2.2.	Funding and Reimbursement	11
2.3.	Instructions and Templates for Presentations	11
2.4.	Copyright Agreement, ISBN E-Book.....	11
3.	Social Event.....	11

1. TRAINING SCHOOL

1.1. OBJECTIVES

The objective of the COST TU1406 Training School-Prague is to spread the latest knowledge and development acquired by the Action in the topic of performance-based assessment and diagnostics of existing road bridges. The school aims at teaching the most recent knowledge on performance bridge assessment procedures with the adoption of specific goals. Other objectives may be listed, such as: (i) to validate the proposed framework with a set of inspectors with experience from bridge assessment in practice; (ii) to test the proposed framework with three different bridge typologies; and (iii) to develop some exchange of knowledge between participants.

1.2. SCOPE

The training school is organised with the support from TSK Praha, maintaining the Prague bridges and will take place after the BESTInfra conference in Prague, 2017.

Venue: CTU in Prague, Faculty of Civil Engineering, Prague

Room: A229

Time: 25 – 28 September 2017

Local Organizer	Co-Organizer/ Trainers
Pavel Ryjáček <i>CTU in Prague, Faculty of Civil Engineering</i>	José C. Matos <i>Minho University, School of Engineering, Civil Engineering Department, Guimarães, Portugal.</i>
Martin Macho <i>CTU in Prague, Faculty of Civil Engineering</i>	Joan R. Casas <i>Universitat Politècnica de Catalunya- BarcelonaTech - Civil Engineering Department, Spain</i>
	Rade Hajdin <i>University of Belgrade, Serbia</i>
	Amir Kedar <i>Kedmor Engineers Ltd, Israel</i>

The training school will cover the WG1 and WG2 topics of COST Action TU 1406, which are "the assessment of road bridges through Key Performance Indicators (KPIs)" and "the establishment of Performance Thresholds / Goals".

Organisers: TUD COST Action TU1406 "Quality specifications for roadway bridges, standardization at a European level (BridgeSpec)" (http://www.cost.eu/COST_Actions/tud/TU1406) in collaboration with IABSE.

1.3. ABOUT PRAGUE

Prague is the capital and largest city of the Czech Republic. It is the 15th largest city in the European Union. It is also the historical capital of Bohemia. Situated in the north-west of the country on the Vltava River, the city is home to about 1.26 million people, while its larger urban zone is estimated to have a population of nearly 2 million. The city has a temperate climate, with warm summers and chilly winters. Prague has been a political, cultural, and economic centre of central Europe with waxing and waning fortunes during its 1,100-year existence. Founded during the Romanesque and flourishing by the Gothic, Renaissance and Baroque eras, Prague was not only the capital of the Czech state, but also the seat of two Holy Roman Emperors and thus also the capital of the Holy Roman Empire. It was an important city to the Habsburg Monarchy and its Austro-Hungarian Empire and after World War I

became the capital of Czechoslovakia. The city played major roles in the Bohemian and Protestant Reformation, the Thirty Years' War, and in 20th-century history, during both World Wars and the post-war Communist era.

Prague is home to a number of famous cultural attractions, many of which survived the violence and destruction of 20th-century Europe. Main attractions include the Prague Castle, the Charles Bridge, Old Town Square with the Prague astronomical clock, the Jewish Quarter, Petřín hill and Vyšehrad. Since 1992, the extensive historic centre of Prague has been included in the UNESCO list of World Heritage Sites.

The city boasts more than ten major museums, along with numerous theatres, galleries, cinemas, and other historical exhibits. An extensive modern public transportation system connects the city.

For facts and details see the [CIA Factbook](#) or the [wikipedia article](#) about the Czech Republic. From the wide range of travel and tourism information sites on the Czech Republic and Prague, we recommend the [official Czech tourism site](#) and the site of [Lonely Planet](#).

1.4. PROGRAMME

Monday, 25 September 2017

When	What
08:30 – 9:00	Opening
09:00 – 10:00	Lectures <ul style="list-style-type: none"> – Prof. Joan Casas <div style="background-color: #f0f0f0; padding: 5px; margin-top: 5px;"> <p>Detailed Program</p> <ul style="list-style-type: none"> – COST Action TU 1406 – General issues – Introduction to the Action: Motivation and Main objectives – Expected outcomes from the Action – Status of the Action – Need for a Quality Control Plan for European bridges – Performance-based bridge assessment – Motivation of the Training School </div> <p>Learning Outcomes</p> <p>Capabilities associated with performance indicators and performance-based assessment of existing highway bridges:</p> <ul style="list-style-type: none"> (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. <div style="background-color: #f0f0f0; padding: 5px; margin-top: 5px;"> <p>Bibliography</p> <ul style="list-style-type: none"> (i) TU1406 Cost Action - ebook of the 1st Workshop Meeting; (ii) TU1406 Cost Action - ebook of the 2nd Workshop Meeting; (iii) COST TU1406 WG1 Report; </div>
10:00 – 10:15	Coffee-Break
10:15 – 12:45	Lectures <ul style="list-style-type: none"> – Prof. Rade Hajdin – Mr. Amir Kedar <div style="background-color: #f0f0f0; padding: 5px; margin-top: 5px;"> <p>Detailed Program</p> <ul style="list-style-type: none"> – COST Action TU 1406 WG3 - Quality Control Framework </div>
12:45 – 13:30	Lunch
13:30 – 15:30	Lecturers

- Assoc. Prof. Pavel Ryjacek
- Ass. Prof. Jan Zatloukal
- Ing. Pavel Dohnálek, Ph.D.

Detailed Program

Diagnostics and NDT techniques for bridge diagnostics, theoretical background for:

- (i) Steel bridges
- (ii) Concrete bridges, reinforcement, prestressing bars, specific tasks
- (iii) Masonry bridges and structures

Learning Outcomes

Capabilities associated with background for NDT techniques

15:45 – 16:00

Coffee-Break

16:00 – 17:30

Laboratory work

- Assoc. Prof. Pavel Ryjacek
- Ass. Prof. Jan Zatloukal

Detailed Program

Practical work with NDT devices, test of concrete sample, separated to groups

- (i) Schmidt hammer, carbonation, chlorides. Reinforcement detection.
- (ii) Steel hardness and thickness measurement, corrosion weakening
- (iii) Mortar strength test

Learning Outcomes

Capabilities to perform and design the inspection and diagnostics.

Tuesday, 26 September 2017

When

What

09:00 – 17:00

Bridge inspection and diagnostics, three bridge (figures of the expected bridges are below) and three teams will be inspecting them, including NDT and concrete drilling.

Lectures:

- Prof. Joan Casas
- Prof. Rade Hajdin
- Mr. Amir Kedar
- Assoc. Prof. Pavel Ryjacek

Masonry Bridge



Steel Bridge



Concrete pre-stressed



Wednesday, 27 September 2017

When	What
09:00 – 17:00	Application of the framework as well as developing short report and presentations.
12:30 – 13:30	Lunch
12:30 – 17:00	Application of the framework as well as developing short report and presentations.

Thursday, 28 September 2017

When	What
08:30 – 12:30	Presentations of teams, discussion of results, team work (08.30-12.30).
12:30 – 13:00	Closing

1.5. LOCATION, DATES AND TRAVELLING

1.5.1. LOCATION AND DATE

The school will be hosted by the Czech Technical University in Prague, Faculty of Civil Engineering (Thákurova 7, Praha 6). The school is located in the university campus in Prague, close to the metro

station (10 minutes to the Prague centre, the main train stations are within 20 minutes range by Metro) and near the Prague Airport (30 minutes by bus).

CTU in Prague, Faculty of Civil Engineering
Thákurova 7
166 29 Praha 6
Web: <http://www.fsv.cvut.cz/index.php>

1.5.2. HOW TO GET TO CTU

The easiest and most sustainable way to travel in Prague is by public transport. The public transport in Prague is clean, safe and mostly commendable. For public transport information use the [trip planner](#) of local transportation company [DPP](#).

The public transport (bus, metro and tram) destination is the **Dejvická** station ([see map](#))

Travelling from the airport: take the public **bus 119** to *Nádraží Veleslavín*, change there for the **metro** line in the direction *Depo Hostivař* or *Skalka*. The ticket fare is 32 CZK for 90 min.

Travelling by train: from the Prague Main Station take the **metro line C** in the direction to *Háje* or *Kačerov*, change at first stop *Muzeum* to **line A** in the direction *Nemocnice Motol* or *Petřiny*. The conference venue is near to the *Dejvická* station.

Travelling by car: you can park your car in the streets around Faculty of Civil Engineering building, but it is necessary to pay for the parking, as the parking zones were recently introduced. You can use also the underground parking in the National Technical Library across the street from the venue.

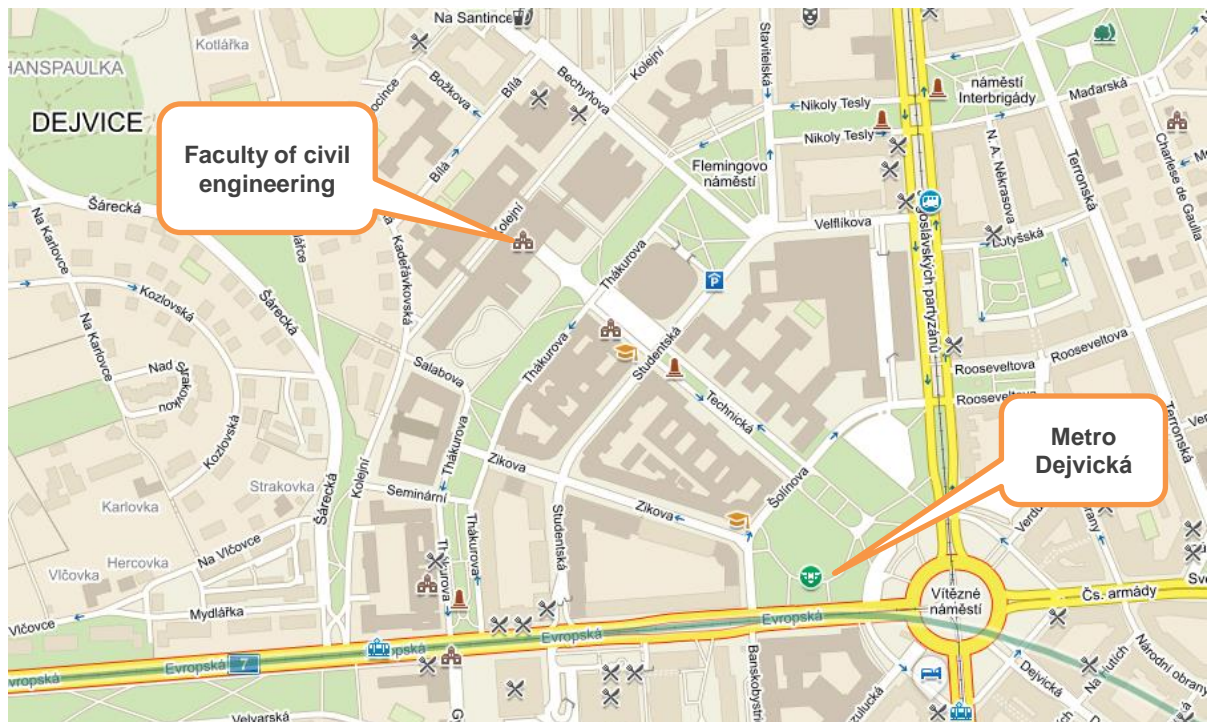


Figure 1. Location of the CTU and nearest Metro station Dejvická

Useful websites:

General info about Prague: <http://www.prague.eu/en>

Public transport information in Prague: <http://spojeni.dpp.cz/ConnForm.aspx?tt=PID&cl=E5>

1.6. ACCOMMODATION

Three possible hotels are selected here, they are close to the meeting venue and reasonably priced. However, there are plenty of hotels in Prague, for other locations, the booking.com server is recommended.

1/ Masarykova Kolej 3*
Thákurova 1, Prague, 160 41, distance 400m
<http://www.masarykovakolej.cz/en/hotel>



2/ Hotel International Prague 4*
Koulova 15, Praha, 160 45, distance 800m
<http://internationalprague.cz/en/>



3/ Vienna House Diplomat Prague 4*
Evropská 15, Praha, 16041
www.viennahouse.com/en/

1.7. COMMITTEES

An executive scientific committee as well an organizing committee were defined.

1.7.1. SCIENTIFIC AND ORGANIZING COMMITTEE

<i>Name</i>	<i>TU1406 Position</i>	<i>E-mail</i>
José C. Matos	Chair	chair@tu1406.eu
Joan R. Casas	MC member	joan.ramon.casas@upc.edu
Rade Hajdin	MC member	Rade.Hajdin@imc-ch.com
Amir Kedar	MC member	akedar@kedmor.co.il
Pavel Ryjáček	MC member	pavel.ryjacek@fsv.cvut.cz

1.7.2. SECRETARIAT

<i>Name</i>	<i>TU1406 Position</i>	<i>E-mail</i>
Eleni Chatzi	Technical Secretariat	tecsec@tu1406.eu

Lara Leite	Administrative Secretariat	adminsec@tu1406.eu
Sergio Fernandes	Administrative Secretariat	sergio.cd.fernandes@gmail.com

1.7.3. LOCAL ORGANIZERS

<i>Name</i>	<i>TU1406 Position</i>	<i>E-mail</i>
Pavel Ryjáček	WG member	pavel.ryjacek@fsv.cvut.cz
Martin Macho		martin.macho@fsv.cvut.cz

2. HOW TO PARTICIPATE

2.1. REGISTRATION

There is no need for registration, except for the Networking Dinner. A google form was created to determine the ability/willingness of the participants to participate in the planned network dinner on Monday 25/9 at 18:30.

Please answer these questions by using the link:
<https://docs.google.com/document/d/1tclaup3HBlqlfkvzjs-rZOW0x8V3mib3BsewRU9nys/edit?usp=sharing>

2.2. FUNDING AND REIMBURSEMENT

COST supports the participation of Trainees and Trainers for their attendance at approved Training Schools. 18 Trainees approved by the Organization/Management Committee, based on technical curriculum and on the COST policies on ESR (early stage researcher), gender and inclusiveness country, are entitled to receive a fixed Grant of 650€ and free registration.

2.3. INSTRUCTIONS AND TEMPLATES FOR PRESENTATIONS

Trainees are kindly asked to use the templates for their assignments, available at <http://www.tu1406.eu/prague>, in order to achieve a degree of coherency.

2.4. COPYRIGHT AGREEMENT, ISBN E-BOOK

Participants are kindly asked to accept copyright and publishing rules in order to allow organizers to publish and disseminate their assignments and presentations. This is determined by filling a specific form provided at <http://www.tu1406.eu/prague>. An e-Book will be published after the training school.

3. SOCIAL EVENT

A network dinner is planned on Monday 25/9 at 19:30 at the Strahov **Monastic Brewery**, along with a walk to the dinner through the Prague castle (app. 1h, 2 km). Includes dinner, local special beers and a visit to the mini-brewery.

Price: 35 Euro





WWW.TU1406.EU