2ND INTERNATIONAL SUMMER SCHOOL

STRENGTHENING TECHNIQUES OF EXISTING BRIDGES

BRESCIA
JULY 4-8, 2022

Chairmen:
Prof. Fausto Minelli and Prof. Giovanni Plizzari

UNIVERSITY OF BRESCIA
DICATAM
Department of Civil, Environmental, Architectural Engineering and Mathematics

REGISTRATION

The registration costs include coffee breaks, the technical visit, and banquet dinner.
Please visit the site for more informations.

FEES AND PAYMENT

- Students, PhDs, research fellows belonging to DICATAM: free of charge
- Other students, PhDs, research fellows: 200 €
- Engineers and practitioners: 400 €
- Engineers registered with the Brescia Engineer Chamber (Ordine): 300 €
- Engineers member of CTE or fib: 350 €

CONTACTS

Professor Fausto Minelli
University of Brescia
Phone: (+39) 030-3711-277
e-mail: fausto.minelli@unibs.it

ORGANIZING COMMITTEE

Professor Fausto Minelli
Professor Giovanni Plizzari
Engineer Fabiola Iavarone
Engineer Nico Di Stefano
Engineer Enrico Faccin
Engineer Stefano Giuseppe Mantelli

VENUE

Set between Milan and Verona at the foot of the Alps, Brescia is the second largest city in Italy's northern Lombardy Region, with 200.000 inhabitants. The city's rich history dates back to pre-Roman times, when it was a Gallic capital. Among the many great local sights are the 11th-century "Duomo Vecchio" (Old Cathedral, also called "La Rotonda"), unique for its circular shape, the 17th-century "Duomo Nuovo" (New Cathedral) nearby, and the first-century Roman ruins at "Tempio Capitolino". Brescia is also famous for its lakes (Garda, Iseo and Idro) surrounded by mountains and vineyard-covered hills.

HOW TO REACH UNIVERSITY OF BRESCIA

By air from these airports:
Milano Orio al Serio,
Verona Villafranca,
Milano Linate.
By car:
Highway A4, exit Brescia Ovest
Highway A21, exit Brescia Centro
By train:
Brescia Railway Station

HOW TO REACH DICATAM

The engineering school can be reached by Metro bound to Prealpino (Stop: Europa)

HOTEL LIST

Hotel Vittoria *****
Hotel Master ****
DoubleTree by Hilton Brescia ****
Hotel Ambasciatori ****
B&B Hotel Brescia ***
B&B Ai Musei Brescia ***
Regal Hotel ***

AIM AND SCOPE

Main objective of this Summer School is to provide innovative training ground, experience in existing bridge engineering with respect to the increasing need of safety, assessment, monitoring and retrofitting of existing ones.

It is well known that traffic volumes and loads can greatly increase during the life-span of an infrastructure. The infrastructure performance can fall under a warning level and a strengthening or repairing intervention become necessary. In other cases, the environmental conditions lead to a premature deterioration of the materials and an extremely quick intervention is needed as well. Moreover, some infra structure elements were built before the seismic codes were available or before the seismic risk was recognized in the area of construction.
Deterioration of materials, higher traffic loads, seismic hazard are determining the need of defining innovative structural solution and new analyses and retrofitting techniques for existing bridges.
Some bridge major collapses occurred in the last few years in Italy brought high attention and warning on the safety of bridges and, more in general, on the infrastructure system in Italy.
There is a significant and growing need for the strengthening of existing reinforced concrete structures. Structural deterioration may have taken place, a change in use could result in more onerous loading, or requirements of design and loading Standards may change.
There is a need for techniques that can provide cost effective solutions to both the design and implementation of strengthening measures. Moreover, there is a stronger need than ever to grow researchers/practitioners that combine a robust academic foundation in structural analysis/conceptual design with practical experiences, technological expertise with awareness of the socio-economic impact in the field of existing infrastructures.
Hence, main goal of the Summer School is to offer innovative background, both analytical and practical, on structures and infrastructures, as well as laboratory experience.

The Summer School will be supported by the International Association for Structural Concrete (fib) and by the Engineering Chamber of Brescia.

WHO SHOULD ATTEND

V year engineering students, Graduate students, postdoctoral researchers, university staff, and practitioners willing to do research and applications in the field of bridges and infrastructures.

CAREER OPPORTUNITIES

The school is a unique chance to meet peers, experts and practitioners in the field.

COURSE OUTLINE

- Structural analysis and advanced design methods for existing bridges;
- Bridge typologies and their applications;
- Determination and evaluation of loads in bridge: evolution over time;
- Assessment of existing bridges: definition of structural deficiencies, evolution of exceptional loads worldwide, material degradation, seismic events, impacts;
- Strengthening Techniques: FRP, FRC, FRCM, classical steel and concrete-to-steel techniques;
- Intervention strategies
- Case studies on existing bridges.

INTERNATIONAL AND NATIONAL LECTURES

Hugo Corres Peiretti, Full Professor, UPM, Past President of fib
Marco Di Prisco, Full Professor, Politecnico di Milano
Egli, Mapei
Fausto Minelli, Full Professor, University of Brescia
Aurelio Muttoni, Full Professor, EPFL Lausanne
Giovanni Plizzari, Full Professor, University of Brescia
Walter Salvatore, Full Professor, University of Pisa
Joost Walraven, Professor Emeritus, Delft University of Technology, Delft (TU)

SUMMER SCHOOL ROOMS

Room B0.3 (ground floor) - via Branze 43

COURSE SCHEDULE

Monday July 4, 2022
8.30 – 9.00: Registration
9.00 – 10.45 F. Minelli: *Guidelines for risk classification and management, safety assessment and monitoring of existing bridges. Experiences Northern Italy*
11.00 – 13.00 M. Di Pisco: *The bridges in Italy: state of the art, case studies, research in progress and rational approaches to select intervention priorities*
14.00 – 15.30 H. Corres: *Sustainability in existing bridges: value of the interventions*
15.45 – 17.00 H. Corres: I*nterventions in existing bridges and buildings. Case studies: Rande cable and Alcoi cable*

Tuesday July 5, 2022
9.00 – 13.00 H. Corres: *Suspension bridge in Santos, Brazil: main cable replacement and repair.*
Colon Towers, Madrid: architectural adaptation, increase in the number of floors and structural rehabilitation
14.00 – 17.00 T*echnical visit*

Wednesday July 6, 2022
9.00 – 13.00 A. Muttoni: *Case studies of assessment and interventions on bridges*
14.00–17.00 J. Walraven: *Assessing the bearing capacity of existing bridges and need for strengthening*

Thursday July 7, 2022
9.00 – 13.00 J. Walraven: *Strengthening measures for different types of bridges*
14.00–17.00 Egli: *Strengthening bridges with FRP*

Friday July 8, 2022
9.00–10.45 W. Salvatore: *Advanced inspections in critical post-tensioned bridges*
11.00 – 13.00 G. Plizzari: *Strengthening of existing bridges by means of UHPFRC: case studies*

Seminario in italiano per professionisti (3CFP)
Sala Consiliare - via Branze 38
14.00 – 17.30 *La gestione dei ponti esistenti a valle della pubblicazione delle recenti Linee Guida: il caso della Provincia di Brescia*
Il seminario è organizzato dall'Ordine degli Ingegneri della Provincia di Brescia in collaborazione con DICATAM e Provincia di Brescia.

Relatori:
Arch. Paola Archini, Provincia di Brescia
Prof. Fausto Minelli, Università degli Studi di Brescia
Ing. Nico Di Stefano, Università degli Studi di Brescia
Ing. Enrico Faccin, Università degli Studi di Brescia
Ing. Stefano Giuseppe Mantelli, Università degli Studi di Brescia