UNIVERSITY OF PERUGIA_DICA DEPARTMENT OF EXCELLENCE

A.D. 1308
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DIPARTIMENTO
DI INGEGNERIA
CIVILE E AMBIENTALE
DIPARTIMENTO DI ECCELLENZA

CIVIL AND ENVIRONMENTAL ENGINEERING

DOCTORAL PROGRAM 2021-2022

STRAIN-BASED STRUCTURAL HEALTH MONITORING OF CIVIL STRUCTURES

Course description

Needs for optimization of maintenance costs, increase of safety, and continuous developments of new construction materials and methods, as well as recent technological developments in various areas of science and engineering, all led to creation of new interdisciplinary branch of engineering – Structural Health Monitoring (SHM). Strain is one of the most frequently monitored parameters in civil SHM applications due to multiple reasons: strain is directly related to stress and deflection, which reflect structural performance, safety, and serviceability; and strain field anomalies are frequently indicators of unusual structural behaviors (e.g., damage or deterioration). This course introduces the topics of strain-based SHM with basic definitions of measurement and monitoring, monitoring activities and entities, and with various available and emerging strain monitoring technologies. The fundamental criteria for applications on concrete and steel are elaborated, and basics on data interpretation and analysis are presented. Finally, methods applicable to large spectrum of civil structures, such as bridges, buildings, geo-structures, and large structures are developed. Each lecture of the course is illustrated with examples taken from the practice. A fair knowledge in Construction Materials, Structural Analysis, and Engineering Mathematics is expected from participants.

Prof. Branko Glišić, received his degrees in Civil Engineering and Theoretical Mathematics at the University of Belgrade, Serbia, and Ph.D. at the EPFL, Switzerland. After eight-year long experience at SMARTEC SA, Switzerland, he has been employed as a faculty member of Civil and Environmental Engineering at Princeton University.

His research focus is on universal Structural Health Monitoring (SHM) methods; emerging sensing technologies; advanced data analysis for diagnostics, prognostics, and decision-making; smart, kinetic, deployable, and adaptable structures; holistic analysis of heritage structures; and engineering and the arts in general.

Prof. Glišić is author and co-author of more than hundred published papers, several university courses, training courses for practitioners, and the book "Fibre Optic Methods for Structural Health Monitoring". He is Council Member, and fellow of ISHMII, and member of several other professional associations and journal editorial boards. Prof. Glišić received several awards for his research and teaching including prestigious "SHM Person of the Year" award.

Course Schedule

Day 1, July 11: 9:30-13:30 + 14:30-16:30 AULA 3
Day 2, July 12: 9:30-13:30 + 14:30-16:30 AULA 3
Day 3, July 13: 9:30-13:30 + 14:30-16:30 AULA 3
Day 4, July 14: 9:30-13:30 + 14:30-16:30 AULA 3
Day 5, July 15: 9:30-13:30 + 14:30-16:30 AULA 3

For more details
https://bit.ly/3y43U20

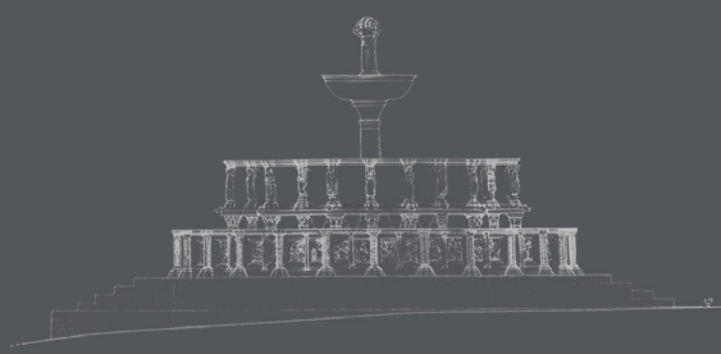
Location

Campus of Engineering of University of Perugia
Latitude: 43.118177 Longitude: 12.357942

In presence - AULA 3
Online - Teams platform
CEEPhD Team (Room 1)
https://bit.ly/3tNvYUN

Registration information

There is no registration fee for the course.



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