



CPD-accredited Workshop, 06-07 October 2022, 08:30 – 17:00

Non-Destructive Testing of Concrete Structures

University of Cape Town, Dept. of Civil Engineering

Venue

University of Cape Town
Department of Civil Engineering
Upper Campus, Rondebosch
New Engineering Building

Contact

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Background, Content, Purpose and Structure of the Workshop

Worldwide, concrete durability issues continue to gain importance in engineering practice and education. Reinforced concrete deterioration is commonly related to the adequacy of the protection to steel offered by the concrete cover layer, which is subjected to the action of aggressive agents from the surrounding environment. Damage to structures may also be initiated by chemical, physical or mechanical actions, leading to cracking, delamination, and internal damage. Several test methods for quality assurance and damage characterization of hardened concrete are available. In future, these methods will increasingly be used for design, quality assurance, and condition assessment of concrete members and concrete structures.

The workshop deals with non-destructive testing methods (NDT) in civil engineering for quality control and condition assessment. Condition assessment contributes to the choice of appropriate methods for concrete repair projects. Quality control helps to assure a high-quality standard for concrete members or concrete repair. NDT methods for new constructions as well as methods to assess existing structures are discussed. State-of-the-art methods are presented as well as methods ready for use in the near future.

The purpose of the workshop is to provide participants with a basic understanding on methods, their principles and techniques for non-destructive testing and condition assessment of concrete structures. Both theoretical and practical issues are considered.

The workshop consists of a series of lectures and practical demonstrations in the laboratory of the University of Cape Town. In the practical demonstrations, various non-destructive test methods are demonstrated, indicating their correct application and interpretation.

Participant Target Groups

- Structural engineers and contractors involved in structural assessment and repair / rehabilitation of concrete structures
- Students and academics

Registration Fees (for ICCRRR delegates): R 4600

Programme and Timetable

06 October

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|---------------|---|
| 08:00 - 08:30 | Registration |
| 08:30 - 10:15 | Introduction to non-destructive testing philosophies and methods; Assessment strategies, case studies |
| 10:15 - 10:30 | Teak break |
| 10:30 - 11:30 | Compressive strength assessment using the Impact Hammer |
| 11:30 - 12:30 | Ultrasonic methods (UPV, etc.) |
| 12:30 - 13:30 | Lunch break |
| 13:30 - 14:30 | Advanced NDT-CE; Radar |
| 14:30 - 17:00 | Laboratory demonstrations |

07 October

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|---------------|---|
| 08:00 - 08:30 | Registration |
| 08:30 - 10:15 | Rebar detection and concrete cover; Concrete permeability and quality assurance |
| 10:15 - 10:30 | Teak break |
| 10:30 - 11:30 | Detection of corrosion using Potential Mapping |
| 11:30 - 12:30 | Corrosion rates; concrete resistivity |
| 12:30 - 13:30 | Lunch break |
| 13:30 - 16:30 | Laboratory demonstrations |
| 14:30 - 17:00 | Closure and lessons learnt |

Presenter

Professor Alexander Taffe, HTW Berlin, Germany



Professor Alexander Taffe studied civil engineering at Aachen University of Technology. Later he worked in the field of condition assessment and concrete repair at the Berlin office of Sasse&Fiebrich. Research work at BAM and PhD in the field of validation of NDT-CE methods. Since 2013 he has been Professor in building analysis, NDT-CE and concrete repair at HTW Berlin – University of Applied Sciences. He is chairman of the committee of NDT-CE of the DGZfP (German Society of Non-Destructive Testing). He has been a guest lecturer at the University of Cape Town for more than a decade and is frequently involved in strategizing condition assessment of concrete structures in Southern Africa.