

DR. RIADH AL-MAHAIDI PhD MS(Str) BE Civil(Hons)

- Professor of Structural Engineering and Director of the Smart Structures Laboratory at Swinburne University of Technology.
- Research and practice interests in the area of structural strength assessment and retrofitting using advanced composite materials.



DR. ROBIN KALFAT PhD(Str) BE Civil(Hons)

- Associate Professor of Structural Engineering at Swinburne University of Technology
- Brings over 20 years of combined industry and research experience in strengthening of concrete structures using fibre-reinforced polymers.

WORKSHOP SUMMARY 8 hours of CPD

This workshop is aimed at practicing engineers, consultants and contractors working in the areas of structural design, construction and remediation of reinforced concrete and post tensioned concrete buildings and bridges. The course will provide an overview on the applications of fibre reinforced polymer composites as a strengthening material and the design procedures for FRP strengthening of concrete structures when subjected to flexure, shear and axial loads according to the new AS5100.8 (2017). Some case studies, construction aspects and quality control guidance will also be provided.

The course is aimed at providing:

- A comprehensive understanding of the issues involved in FRP retrofitting of concrete structures
- An overview of the design procedures for strengthening of concrete structures according to the AS5100.8 (2017) using FRP.
- Worked examples on strengthening of reinforced concrete beams in flexure and shear and columns for axial loads using FRP.

Case studies, construction aspects and quality control guidance will also be provided.

PROGRAMME (8.30am Zoom invite will be emailed)

9.00 - 11.00 Session 1

- APPLICATION OF FRP TECHNOLOGY IN STRUCTURES

- Infrastructure crisis
- Damage and Deterioration Issues in Concrete and Steel Reinforcement
- Conventional Strengthening & Repair Techniques
- Introduction into strengthening of RC structures using FRP
- Types of FRP strengthening systems
- Materials and properties of FRP strengthening systems
- Strengthening limits
- Quality control and assurance
- Structural fire endurance
- Environmental reduction factors

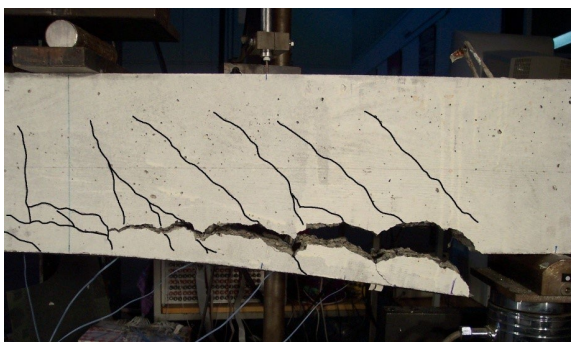
11.00 - 11.15 Morning Break

11.15 - 1.00 Session 2

- FLEXURE STRENGTHENING OF CONCRETE STRUCTURES ACCORDING TO AS5100

- Strengthening for ultimate limit state
- Failure modes and overview into FRP premature debonding
- Serviceability considerations
- Worked examples

1.00 - 1.30 Lunch Break

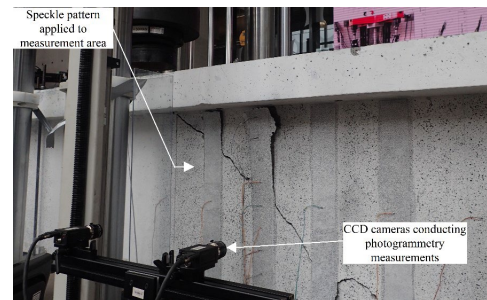


1.30 - 3.00 Session 3

- SHEAR STRENGTHENING OF CONCRETE STRUCTURES ACCORDING TO AS5100

- The new shear model in AS5100
- Strengthening beams in shear using FRP systems
- Possible failure modes of strengthened beams
- Effect of strengthening scheme
- Strengthening for ultimate limit state
- Worked examples

3.00 - 3.15 Afternoon Break



3.15 - 5.00 Session 4

- STRENGTHENING OF CONCRETE COLUMNS ACCORDING TO AS5100 AND FRP ANCHORAGE SYSTEMS

- The influence of confinement of concrete compressive strength
- Confinement strength models
- Strengthening rectangular and circular sections using FRP
- Axial moment interaction
- Worked examples
- FRP anchorage systems for flexure and shear strengthening

Certificate of Attendance will be emailed



Livestreamed via



- One day course – **\$890 pp**

FURTHER INFORMATION

- (02) 9899 7447
- +61 413 998 031
- registrations@etia.net.au

- To register, visit our website www.etia.net.au
- OR scan the QR Code.

