



Civil Engineering Technology

Technology Solutions for the Workplace

Structural Analysis (Bridging)

INSTRUCTOR

Brea Williams

Brea is an instructor in the Construction Management Degree program at Red River College. Prior to joining RRC in 2010, she worked with Halsall Associates Ltd. in Ottawa, Ontario as a Project Engineer specializing in new building design, retrofits, audits and seismic restraint of mechanical/electrical equipment.

Brea earned her Bachelor's and Master's degrees from the University of Manitoba, carrying out research in the area of modular glass Fibre Reinforced Polymers (FRP) bridge decks. She completed her doctorate degree in 2004 at Queen's University having completed her research in partnership with Fyfe Co. LLC and the National Research Council Canada studying the fire resistance of FRP-strengthened concrete beams and slabs.

Brea is registered as a Professional Engineer in Manitoba, and has earned her LEED AP BD+C and Envision SP designations.

INQUIRIES:

Course:

Tammy Harper
204-632-2942
tvharper@rrc.ca

Registration:

Louise Wood
204-632-3017
lowood@rrc.ca

Online Info:

www.rrc.ca/techsolutions

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Course description:

The aim of this course is to introduce students to the basic principles of analyzing structures – both qualitatively and quantitatively. The course consists of analysis of beams and frames to determine external reactions and internal forces (axial force, shear and bending moment), sketching approximate deflected shapes for beams, using beam diagrams to predict maximum shear, moments and deflections, and applying the determinacy test to beams and frames to establish degree of indeterminacy and identifying stable and unstable structures. Students learn to calculate normal and shear stresses due to bending, sketch these distributions, and apply them to design decisions. Finally, students are introduced to lateral load resisting systems, as well as Limit States Design as a lead-in to Structural Design.

Each day will end with a quiz to review material taught that day. There is minimal work outside the classroom. The final test will be on the Friday.

Prior learning:

- CIVL-1011 Algebra/Trigonometry 1 or equivalent
- CIVL-2023 Algebra/Trigonometry 2 or equivalent
- Statics or Mechanics of Materials (Recommended)

Benefits:

Develop a sense of “structural intuition” related to structural stability, load path through a structure, and the aspects considered preparing a building design.

Understand the limit states that form the basis of building analysis & design.

Who should attend?

Individuals who work with Structural Engineers and wish to gain a better understanding of terminology and fundamental principles of how structures work.

Course Dates and Costs:

Dates: May 16-20, 2016

Times: Daily from 8 am to 4 pm

Cost: RRC Students - \$300, Industry Clients - \$500

Location: Red River College, Notre Dame Campus

Registration deadline: April 29, 2016