



Fibre Reinforced Polymer (FRP) Bars and External Reinforcements for Concrete Structures: Properties, Specifications, and Design

The Content

The course presents the major revisions and additions that were made to the following CSA Standards to reflect the latest research findings and field experience:

- ▶ CSA-S806 (2012) Design of Buildings with Fibre Reinforced Polymer,
- ▶ CSA-S807 (2010) Fibre Reinforced Polymers (FRP) and
- ▶ CSA-S808 (2014) Specification for Fibre Reinforced Polymer Materials for externally Reinforced Structures

In particular, the course covers new provisions for the manufacturing process and testing requirements of FRP bars for use in non-pre-stressed internal reinforcement of concrete components of structures (CSA S807), FRP wet layup composite systems, pre-cured FRP plates, and FRP bars externally bonded as structural strengthening materials for concrete structures (CSA S808) and design of two-way slabs against punching shear, the use of FRP as confining and longitudinal tension reinforcement in columns, the design of reinforced and pre-stressed concrete members against combined moment, shear and torsion and the retrofit of building structures for enhanced ductility and seismic resistance. To obtain a copy of the Standards, please go to www.shop.csa.ca. This presentation is intended for consulting engineers, owners and managers of buildings, FRP manufacturers, researchers, and students.

The Instructors

Toronto session: Professors Benmokrane, Razaqpur and Saatcioglu

Moncton session: Professors Razaqpur and Saatcioglu

Drs. Brahim Benmokrane, P.Eng., Ghani Razaqpur, P.Eng. and Murat Saatcioglu, P.Eng. are professors of civil engineering at Université de Sherbrooke, McMaster University and University of Ottawa, respectively. Dr. Benmokrane is Chair of the Technical Committees for the Standards S807 and S808, Dr. Razaqpur is Chair of the Technical Committee for the Standard S806-12 while Dr. Saatcioglu is a member of the S806-12 Committee and a major technical contributor to the standard. The presenters are leading authorities in the field of analysis and design of FRP reinforced or retrofitted structures and are recognized nationally and internationally for their research, technical expertise and practical experience in the field.

Agenda

- Overview of S806-12, S808-14, and S807-10
- Properties and Specification for FRP
- Design of concrete structures with internal FRP reinforcement for:
 - Flexure
 - Shear (including slender beams, deep beams and punching shear in flat slabs and plates)
 - Torsion and Shear and Torsion Combined
 - Bond and Development length
- Flexural and Shear Retrofit of Concrete, Steel and Masonry Structures with Surface Bonded FRP
- Seismic Design of Concrete Structures with Internal FRP Reinforcement
- Seismic Retrofit of Structures with Surface Bonded FRP



VENUES

MONCTON – May 14, 2014
FACULTÉ DE L'INGÉNIERIE
 Room 147G2
 Université de Moncton
 18, avenue Antonine-Maillet
 Moncton, NB E1A 3E9
 506-858-4300

TORONTO – May 15, 2014
FOUR POINTS BY SHERATON
 Simcoe Room
 6257 Airport Road
 Mississauga, ON L4V 1E4
 905-678-1400

*This course is endorsed
By*



FEES AND REGISTRATION

Please click to register online: <http://csce.ca/product/s806-mt/>

7:45 Registration – 8:30 Start of Session – 10:00 Coffee Break – 12:00 Lunch – 15:00 Coffee Break – 16:30 End of Session
 Dates refer to receipt of registration by CSCE. Payment must be received to confirm your place.

	By April 24, 2014		ON		After April 24, 2014		ON	
	NB		ON		NB		ON	
CSCE Members	\$450 + T	= \$508.50	\$450 + T	= \$517.50	\$500 + T	= \$565.00	\$500 + T	= \$575.00
New Members	\$470+\$95+T	= \$638.45	\$470+\$95+T	= \$649.75	\$520+\$95+T	= \$694.95	\$520+\$95+T	= \$707.25
Non-members	\$550 + T	= \$621.50	\$550 + T	= \$632.50	\$600+tax	= \$678.00	\$600 + T	= \$690.00
Students	\$100 + T	= \$113.00	\$100 + T	= \$115.00	\$100 + T	= \$113.00	\$100 + T	= \$115.00

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 Cancellation requests received within the 14 days prior to the start of the course will be non-refundable.
 CSCE reserves the right to cancel any course and will, in such event, fully refund all registration fees.
 Any registrant may substitute another person eligible for the same fee at any time prior to the start of the course.

For group rates and any additional information, please contact:
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