



# PSCAD Technical Workshop

Essentials of Electromagnetic Transient  
Simulation for Power System Studies

Sydney (14–15 February 2019)

Melbourne (18-19 February 2019)

Perth (21-22 February 2019)

A two-day continuing professional development course delivered by the engineering team from Manitoba Hydro International Ltd. (MHI), in conjunction with the Australian Power Quality and Reliability Centre (APQRC) and the University of Wollongong.

Researchers, academics and students will develop a greater knowledge on electromagnetic transient (EMT) simulation and its capabilities. The course will introduce the general theory of EMT and the basics of PSCADTM/EMTDCTM and will be followed by power systems application examples using library components. Particular emphasis will be placed on EMT studies related to solar and wind farm integration which will be of significant interest to the participants. The course will conclude with a question and answer session



## COURSE OUTLINE

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### DAY 1

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- Introduction to electromagnetic transient simulations (EMT) and general background:
  - Time scales of power system phenomena
  - EMTDC fundamentals
  - Need for EMT
- Using PSCAD: Hands on tutorials covering typical transient study applications:
  - Transformer modeling Including saturation and inrush
  - Point on wave switching and 'Multiple Run' component
  - Overhead line modeling and switching transients
  - Breaker TRV
  - Introduction motor basics and starting
- Applications in power electronics, power quality and harmonics:
  - Voltage source converter, pulse width modulation and harmonics
  - Capacitor switching and voltage magnification
  - Harmonic resonance and frequency scanning

### DAY 2

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- Synchronous generator modeling and applications:
  - Short circuit test
  - Multi mass model and torsional interactions
  - Black start restoration study
- Wind and Solar PV:
  - General background and importance of EMT type studies
  - Dynamic response and fault ride through
  - Application of synchronous condensers and STATCOMS for performance improvement
- Question and Answer

## TRAINING INVESTMENT

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The course investment provides for an inclusive industry related training package with course notes, lunches and morning and afternoon tea. Course fee per person is **AUD\$1600 including GST**. Participants may count course hours towards their continuing professional development requirements.

**NOTE:** Arrangements for accommodation are the responsibility of participants and costs are not included in the course fee.

## REGISTRATION

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To register please click on the link below:

<https://uow.onestopsecure.com/OneStopWeb/PSCADWrkshp>

**Note:** There is no guarantee that economic participation levels for this course can be achieved. Registrants will be notified 2 weeks prior to course if the course cannot proceed due to insufficient numbers. The program may be changed at any time due to unforeseen circumstances. If the course cannot proceed for any reason, UOW will not accept liability of whatsoever kind for expenses incurred by any person or corporation with the sole exception of the course investment, which will be refunded in full

## ENQUIRIES

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Please contact Ms Raina Lewis  
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