



# PSCAD Technical Workshop

## Essentials of Electromagnetic Transient Simulation for Power System Studies

**Date: 2 – 3 August 2018**

**Location: University of Wollongong, Innovation Campus, North Wollongong NSW, Australia**

**Cost: AUD\$500**

This two-day course is 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 PSCAD™/EMTDC™ 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.



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# Agenda

August 2, 2018

## **1. Introduction to electromagnetic transient simulations (EMT) and general background:**

- Time scales of power system phenomena
- EMTDC fundamentals
- Need for EMT

## **2. 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.

## **3. 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

August 3, 2018

#### **4. Synchronous generator modeling and applications:**

- Short circuit test
- Multi mass model and torsional interactions
- Black start restoration study

#### **5. 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

#### **6. Question and Answer**

##### **Registration:**

Ms Raina Lewis

University of Wollongong

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**REGISTRATION**

Please enrol me in the two-day PSCAD Technical Workshop to be held at University of Wollongong, Innovation Campus, North Wollongong NSW Australia from 2 – 3 August, 2018

**Cost per person:** AUD\$500 inclusive of GST (Course fee includes lunch, morning and afternoon tea). Lectures commence 9 am.

Surname.....Given Name.....  
Organisation.....Job title/position.....  
Postal Address.....  
State.....Postcode.....Country.....  
Telephone.....Fax.....  
Mobile.....Email.....  
Special dietary requirements.....

**Methods of Payment**

If you wish to pay by **credit card**, please fill out the details below and **email to Raina\_Lewis@uow.edu.au**.

Please debit (circle):    Bankcard        Visa    MasterCard

Card number:

Expires: / for the amount of

AUD\$.....

Name on card: .....

Signature: .....

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**Cheque** payable to “**The University of Wollongong**”

**Mail to:**        Course Registration  
                    Faculty of Engineering Information Sciences  
                    Building 4 Room 111  
                    University of Wollongong NSW 2522  
                    Australia

**Note:** 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.

