

Master Class Power Transformer Insulation



This was the first series of Master Classes being delivered by the TIC centre, which was conceived in conjunction with the centre's industrial partners to fulfil a gap in the training market. A unique feature was that, from the beginning, a balance between the research, science and capability of a leading insulation manufacturer Weidmann and the practical use of insulation in transformer design was to be struck. This was considered necessary to combine the material science of cellulosic insulation and the electrical, thermal and mechanical design principals of transformer design together.

The presenters are experts in the field of cellulosic materials and power transformer design: Christoph Krause Weidmann, Michael O'Brien GE GRID SOLUTIONS GROUP, Rob Milledge ABB AUSTRALIA, Deepak Maini Wilson Transformer Company, Arun Mathur Wilson Transformer Company, Bijay Lal Wilson Transformer Company.

The Master Class was held in Brisbane, Sydney and Melbourne. The Melbourne course included a tour of the Wilson transformer factory. This tour demonstrated the key design, manufacturing and testing aspects of transformer insulation.

LEARNING OUTCOMES

To understand the function(s) of pressboard and paper in power transformers. To get to know the characteristics and challenges of cellulosic insulation with regard to:

- i cellulosic insulation manufacturing
- ii insulation electric design principles
- iii transformer windings sizing (drying), static winding clamping and oil impregnation
- iv operation: aging phenomena

Learn about transformer secret killers, know and assess the key parameters which determine the end-of-life of transformers. To be acquainted with dielectric withstand, partial discharge inception and breakdown in transformers.

Understand the differences between mineral oil and esters:

- Implications for power transformer insulation design

- Thermal behaviour
- Moisture interaction
- Benefits and risks

Be acquainted with dynamic short circuit behaviour in transformers and insulation response.

39 delegates attended this course

100% of delegates said they would recommend this course to others and 100% rated this course good or excellent. What delegates said: "You can't get this course anywhere else."

Alex (EnergyQ) "Fantastic insight into the incredibly fascinating world of power transformer insulation."

Dejan (Endeavour Energy) "Covered a lot of technical aspects directly related to my role."

Antony (TjH2B) "High quality technical material and presenters."

Sean (Enerven) "the single best aspect was the knowledge of the presenters' speakers."

Abdul (Mondo) "Depth overview of insulation."

Jimmy (Ausnet Services) "the best aspects were the discussions and factory tour."

Jai (Ausnet Services) "very good balance of technical breadth."

Ajith (Electranet) "this covers important experiences on insulation of transformers."

Mandy (AECOM) "the amount of knowledge that the presenters could deliver to us is the real value to any attendees." **T&D**



How to Connect with Your On Load Tap Changers and Save \$\$

TIC Advanced CPD Course - Power Transformer Tap Changers - Design, Maintenance and Retrofit 24-25 February 2020. TransGrid Training Centre, Old Wallgrove Road, Eastern Creek, Sydney NSW.

The University of Queensland's, Australasian Transformer Innovation Centre (TIC) is proud to announce the first advanced CPD course for 2020, which will be held in Sydney.

The course will deliver theoretical background information with "hands on" practical experiences suited to procurement, asset strategies, operations and maintenance managers and engineers in generation, transmission and distribution, renewables manufacturing mining industrial and infrastructure organisations.

The speakers will include industry experts from:

- Manufacturers of tap changers including ABB and Reinhausen.
- Transmission and distribution companies.
- Service and testing and companies.
- Researchers from University of Queensland.



Dr Thomas Smolka MR reviewing VRDTs

KEY LEARNING OUTCOMES:

- Understand the basic principles of tap changers, including oil, vacuum.
- Learn the basic arrangement of regulating windings, benefits and issues of oil and vacuum diverters. Tap changer considerations for renewables and grid integration.
- Understand tap changer designs and applications, differences between diverter and selector type, Loading capability, the effects on transformer windings.
- Become familiar with OLTC maintenance for oil and vacuum types. Learn about the steps to take for high diverter moisture content.
- Participate in a forum for OLTC fault investigation and emergency supply restoration.
- Understand retrofit options where oil diverters are replaced by vacuum.



Dr Wenyu Guo OMICRON explains the benefits of dynamic resistance testing

- Understand the benefits of dynamic resistance tests.
- Be informed of innovative condition assessment of tap-changers using acoustic measurements, signal processing techniques used and results from field trials, case study.
- Be exposed to how some utilities are implementing life cycle oriented maintenance of tap changers.
- Moisture tolerance, Life extension.
- Learn about OLTC failures due to silver sulphide formation.

PRICING TIC MEMBERS

Platinum Members \$1,400.00 (Incl 10% GST)
Platinum member group discounts 10% for two, 15% for three and 20% for four or more.

PRICING NON TIC MEMBERS

Non TIC Members \$1,800.00 (Incl 10% GST)
Non member group discounts 10% for two, 15% for three and 20% for four or more.

The Tap Changer course was initially delivered in June 2018. 23 delegates from transmission/distribution/generation/renewables/mining/service attended the 2 day advanced course. 100% of the attendees rated the course "excellent" or "good".

What delegates said:


I would highly recommend this course.

Great technical and experience sharing across utilities manufacturers, vendors. Real experience shared by asset owners.

Great tap changer principle explanation.

Excellent course for entry level education on tap changers.

Fantastic frontline material Case studies were excellent.

Great open discussion, more than 80% of topics are directly relevant to me and my team. Course materials relevant, knowledge of presenters excellent. 

Register your interest by contacting:

Ray Holzheimer
Manager Australasian Transformer Innovation Centre,
University of Queensland
E: r.holzheimer@uq.edu.au M: +61 417 629 684
The online registration will be posted on the TIC website:
<http://www.itee.uq.edu.au/tic-cpd>

If you want to learn more about TIC and the benefits of becoming a member, visit: <http://www.itee.uq.edu.au/tic> or contact:
Prof Tapan Saha, Director, Australasian Transformer Innovation Centre, University of Queensland
E: saha@itee.uq.edu.au M: 0422 001 378



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