Application of Australian Standards for Management of Harmonics, Unbalance & Flicker

CONTINUING PROFESSIONAL DEVELOPMENT COURSE:

14-15 NOVEMBER 2023 (WITH OPTIONAL 3RD DAY) | FACE TO FACE DELIVERY

A course on the application of the Australian standards for allocation of harmonic, flicker and unbalance emission levels, presented by the Australian Power Quality and Reliability Centre.

COURSE DESCRIPTION

Before connection of large loads or generators, the National Electricity Rules (NER) require action to be taken to ensure that the connections will not have an adverse impact on network quality of supply which essentially includes the disturbances: harmonics, voltage fluctuations and flicker, and voltage unbalance.

It is the responsibility of the network operator to allocate an agreed level of disturbance emission level and it is the responsibility of the connection proponent to ensure that the installation to be connected can meet the emission requirements. In Australia, the most common processes used to specify emission allocation levels are defined in the AS/NZS 61000 series of EMC standards, specifically:

- AS/NZS TR IEC 61000.3.6 for harmonics
- AS/NZS TR IEC 61000.3.7 for voltage fluctuations and flicker
- AS/NZS TR IEC 61000.3.13 for unbalance

This course has been developed to allow better understanding of these standards and the methodologies for allocation of each the specific disturbance emission levels. An optional third day includes examples and discussion of practical implementation of the theoretical components of days 1 & 2.

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AUSTRALIAN POWER QUALITY AND RELIABILITY CENTRE
APQRC

UNIVERSITY OF WOLLONGONG AUSTRALIA

CONTINUING PROFESSIONAL DEVELOPMENT COURSE:
APPLICATION OF AUSTRALIAN STANDARDS FOR MANAGEMENT OF HARMONICS, UNBALANCE & FLICKER

COURSE PROGRAM

DAY 1

Day 1 of the course will focus on the following:

- The role of standards and the various categories of documents produced by standardisation bodies
- Voltage unbalance: analysis principles, standards, and management
- Harmonics: calculation principles and the role of standards with regard to limits, determination of customer emission allocations and compliance assessment

DAY 2

Day 2 of the course will focus on the following:

- Harmonics (continued)
- Voltage fluctuations and flicker: analysis principles standards and management
- Case studies illustrating emission determination and analysis for renewable energy generators
- Discussion session

DAY 3 (OPTIONAL)

The optional day 3 of the course includes:

- Modelling considerations for PQ studies
- Generator and network modelling for harmonic emission studies
- Practical examples of the application of AS 61000.3.6

COURSE OUTCOMES

At the conclusion of the course participants will:

- Have an understanding of the causes and effects of harmonic distortion, voltage fluctuations and flicker, and unbalance and the need to limit their magnitudes in electricity supply networks
- Have an understanding of the current Australian Standards related to power quality and how they work together to maintain acceptable quality of supply
- Understand the challenges in applying the Australian Standards for allocation of harmonics, voltage fluctuations and flicker, and unbalance
- Have encountered the problems in the practical application, concepts and methodologies defined in AS/NZS TR IEC 61000.3.6, AS/NZS TR IEC 61000.3.7 and AS/NZS TR IEC 61000.3.13
- Understand the steps and resources required to practically implement Australian Standards for the purposes of allocating and assessing PQ emissions

WHO SHOULD ATTEND?

This course has been designed to assist those who deal with the allocation of power quality emission levels. The course would be of particular interest to engineers or technical officers working with network service providers or proponents of large loads or generators, particularly renewable energy generators such as solar farms.

ABOUT THE SPEAKERS

The course will be delivered by Professor Vic Gosbell, Professor Sarath Perera and Jason David from the Australian Power Quality and Reliability Centre at the University of Wollongong. Professors Gosbell and Perera have been engaged by Standards Australia and the ENA to develop guidebooks to assist practitioners in applying the standards. Both Vic and Sarath have extensive experience in theoretical and practical application of these standards and continue to contribute to their development on the national and international stage.

Emeritus Professor Vic Gosbell has many years of experience in the electric power supply industry, having worked on power system stability, power electronics, variable speed drives and power quality. He established the Power Quality Centre in 1996 and was its Technical Director for nine years. Although now retired, he still contributes to the work of the Centre, particularly in the areas of harmonic management and the development of power quality survey and reporting techniques. Vic is an active member of the Standards Australia technical committee EL-034 (Power Quality) as well as CIGRE International Working Group C4.40 which is in the process of providing recommendations for updates to IEC 61000-3-6.

Professor Sarath Perera was the Technical Director of the Australian Power Quality and Reliability Centre for the last 15 years. He has over 30 years' experience in the areas of power quality. He is the Chair of Standards Australia technical committee EL-034 (Power Quality). He has been an active member of several CIGRE working groups associated with power quality and is currently a member of the CIGRE working group responsible for the revision of IEC/TR 61000.3.6, 3.7, 3.13 and 3.14, where he has the prime responsibility on the revisions to IEC/TR 61000.3.13.

Jason David is a researcher with the Australian Power Quality and Reliability Centre, with a focus on the impact of renewable energy generation connections. His latest research involves reviewing Australian and international harmonic standards and their applicability to systems with high penetration of renewable energy generation. He also has extensive experience in harmonic modelling and compliance assessment within the Australian context.

TRAINING INVESTMENT

The course investment provides for an inclusive industry related training package including course notes. The course fee for the 2-day course is **AUD$1770 including GST** per person. The fee for Day 3 is $500.

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

To register please click on the link below:

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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

ENQUIRES

Registration enquiries:
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