ASEAN ENGINEERING REGISTER

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DISTINGUISHED LECTURE 4

30 JULY 2021

6.00 PM – 7.30 PM
GMT+8

Power Quality and Earthing for Mission-Critical Installations

a joint event by
ASEAN Engineering Inspectors - Electrical Installation (AEI) in collaboration with The Institution of Engineers, Singapore (IES)

an evening with

Er. Dr LOCK Kai Sang

Professor & Head, Energy Efficiency Technology Centre
Singapore Institute of Technology

Register @

https://forms.gle/B6aihNZio8njXo8f6

LIVE WEBINAR TIMES

Country	Time	Country	Time
Brunei	18:00 hrs	Myanmar	16:30 hrs
Cambodia	17:00 hrs	Philippines	18:00 hrs
Indonesia	17:00 hrs	Singapore	18:00 hrs
Laos	17:00 hrs	Thailand	17:00 hrs
Malaysia	18:00 hrs	Vietnam	17:00 hrs

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Power Quality and Earthing for Mission-Critical Installations

Synopsis

Electrical and electronic equipment are designed and built to operate satisfactorily under specified power quality and electromagnetic environment. They may malfunction or degrade in performance when operating beyond the stipulated power quality and EM environment.

Power quality of utility supply is deteriorating due to grid connection of renewable energy sources, such as the PV farms, and the proliferation of electronic loads, which include variable-frequency drives and charging stations of electric vehicles. Harmonic voltage waveform distortion, transient voltage disturbances associated with short circuit faults, lightning, and network switching have emerged as major concerns to manufacturers and users of electronic equipment. Increasingly, a high proportion of the disturbances is generated by user equipment and by inadequate wiring and grounding practices.

In the ASEAN context, lightning and the associated surges are the major causes for equipment damage and operational disruption. Unfortunately, misconception and malpractice in bonding and surge protection implementation often lead to additional problems instead of achieving the intended mitigation.

This seminar will provide an overview of the power quality problems and explain how they affect the reliability and availability of sensitive electrical and electronic equipment. The speaker will then share the best practices for powering and grounding such sensitive electrical and electronic equipment.

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Power Quality and Earthing for Mission-Critical Installations

Speaker Profile

Er. Professor Lock Kai Sang

BSc PhD FSEng Hon FIES SFAAET FIET FICS FSIArb CEng ACPE PEng

Dr Lock is a Professor at Singapore Institute of Technology (SIT) and the Head of the Energy Efficiency Technology Centre. He has a unique blend of practicing and academic experience acquired through a career equally split between the industry and the academia.

He received his BSc (1st Class Honours) in Electrical and Electronics Engineering in 1975 from the University of Strathclyde, UK. He completed his Ph.D. degree at the same university in 1979 researching on the design optimization of electrical machines. He joined the National University of Singapore as a lecturer in 1980 and was the Head of its Power and Machines Division, Department of Electrical Engineering, when he left in 1997 to set up his consulting practice. He has authored over 200 consultancy reports, mainly in power quality and reliability, EMC, lightning and surge protection, failure analysis, and design for mission-critical power system. After 19 years in consulting practice, he returned to the academia in 2016 as a Professor at SIT.

He is an Emeritus President and an Honorary Fellow of the Institution of Engineers, Singapore. He has served as a Board Member of the Professional Engineers Board, Singapore for 14 years. He is a Fellow of Academy of Engineering, Singapore, Senior Fellow of ASEAN Academy of Engineering and Technology and Honorary Fellow of ASEAN Federation of Engineering Organizations. He is active in dispute resolution as an expert witness, mediator, adjudicator and arbitrator.

He is the co-author of a book “Grounds for Grounding: a Circuit-to-System Handbook” published by IEEE/John Wiley in 2010.

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