THE ASSOCIATION OF CONSULTING ENGINEERS MALAYSIA

zoom

BEM Approved
CPD: 2 hours

Webinar on Fundamental Understanding of Hydro Power Scheme from STEM Perspective, Engineering Practices, Social and Environmental Impacts

22 January 2026
10.00 a.m. - 12.00 noon

Synopsis

With the exponential growth in global energy demand driven by modern lifestyles, it has become essential to harness renewable and sustainable energy sources. Among these, hydropower stands out as a mature and dependable technology that utilises the immense solar energy driving the Earth's water cycle. Historically, humans have tapped this energy through simple water wheels, and today, the same principles form the foundation of modern hydropower systems.

Hydropower is recognised for its clean, efficient, and environmentally friendly characteristics when properly designed and managed. Its operation is governed by well-established physical laws—energy conservation between potential and kinetic forms, fluid dynamics described by Bernoulli's and Navier–Stokes equations, and electromagnetic induction governed by Faraday's law.

Modern hydropower schemes generally include reservoir (storage) and run-of-river systems for base-load generation, as well as pumped-storage systems for peak-load shifting and off-peak energy storage. This webinar provides a concise overview of the energy conversion process in hydropower schemes from a STEM perspective, highlighting the interdisciplinary engineering principles that underpin their design and operation.

The session will also conceptually touch on control systems in power generation, focusing on voltage regulation, frequency and phase matching, and the application of PID and adaptive control methods for grid synchronisation. Finally, practical challenges in planning, feasibility assessment, design, operation, and maintenance will be discussed, along with lessons learned from notable hydropower incidents to emphasise the importance of sound engineering practice and caution in project implementation.

Speaker

Ir. Liew Shaw Shong obtained his Bachelor of Science Degree in Civil Engineering with First Class Honours from National Taiwan University at Taipei in 1991 and worked as a geotechnical engineer in Sino Geotechnology Inc. at Taipei for a year. In 1992, he continued his post-graduate study in University of New South Wales in Sydney, Australia and obtained his Master of Engineering Science in 1993. He then returned to Malaysia to work as a geotechnical engineer in a multi-discipline engineering consultant firm.

In 1999, he jointly established a geotechnical specialist consulting firm with another two partners to continue the consultancy practice till now. He is the Senior Director/Founder of G&P Geotechnics Sdn Bhd, and also Project Director for G&P Professionals Sdn Bhd. In the past 33 years of his professional career, he has been involved in a number of forensic investigations of landslide problems at mountainous roads and is one of the project team member in the National Slope Master Plan Study commissioned by JKR. He is now also the member of Professional Fellow Member, Engineers Australia (EA). He has published more than 95 technical papers on geotechnical engineering in local and overseas conference and seminars

Registration Fee (*inclusive of 8% SST*)

ACEM member firms	RM 35.00 per person
Others	RM 65.00 per person

(E-certificate of attendance will be issued, subject to full attendance)

Please click link ***https://kliksini.my/J06bH*** or scan QR code for online registration.

For further enquiries, please contact the ACEM secretariat at 012 5290031 or email vivien@acem.com.my