

Organised by
Building Services
Technical Division (BSTD), IEM

Webinar Talk on:

From Reactive to Predictive

A Paradigm Shift in Motor Condition Monitoring for Industry 4.0

Date : 3 December 2026

Time : 3.00pm - 5.00pm

Platform : Zoom Platform

Speaker : Nick Kang

BEM Approved CPD Hours: 2
Ref. No.: IEM26/HQ/529/T(w)

Registration Fees:

- Student Member : FOC
- IEM Member : RM 15.00
- Non-Member : RM 70.00

SYNOPSIS

In the era of Industry 4.0, unexpected critical motor failures still cause heavy financial losses and downtime across heavy infrastructure. This webinar covers the shift from **reactive maintenance to model-based intelligent predictive maintenance.**

Drawing on electromagnetic physics and engineering validation, it shows how **model-based electrical signature analysis (ESA)** works as a continuous diagnostic asset.

By leveraging advanced electromechanical **digital twins and edge processing technology**, modern setups can capture and analyze high-frequency voltage and current signatures directly at the source to isolate mechanical, electrical & process related anomalies deep within rotating equipment. Instead of relying only on physical vibration sensors.

This enables **real-time diagnostic capabilities** that integrate and synchronize seamlessly with plant SCADA systems for live control room visualization, automate work order dispatches through high-level asset performance management and operational planning.

What will you take away?

- The **electromagnetic physics and system validation principles** behind automated fault detection.
- Technical and operational differences between **traditional output diagnostics and continuous model-based assessment.**
- A real-world industrial case study of how predictive anomalies are captured, evaluated and resolved in live environments.
- A linking anomaly detection directly to localized industrial energy savings.

AGENDA

1. **Maintenance Paradigms & Electrical Signature Analysis (ESA)**
2. **Establish Electromechanical Digital Twins**
3. **Integrating Edge Intelligence to Industry 4.0 Asset Management Architecture**
4. **Practical Field Validation, Case Sharing & Energy Optimization Metrics**



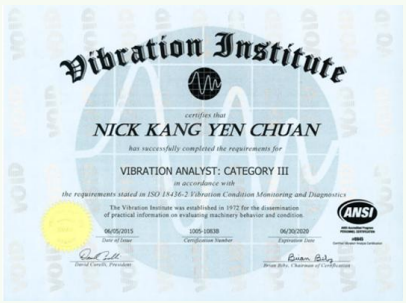
Speaker: Mr. Nick Kang Yen Chuan

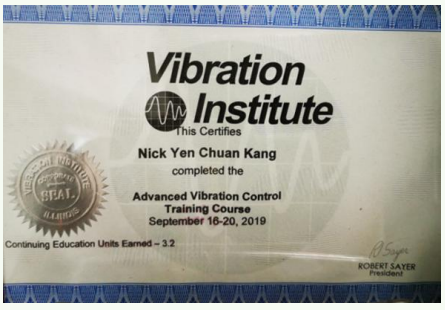
Director & Chief Engineer of Vibro Technologies (M) Sdn Bhd

- 30+ Years of Industrial Expertise: Proven track record in machinery reliability, condition monitoring, electrical signature analysis and predictive maintenance (PdM).

<u>Core Technical Credentials:</u>

- Certified Category III Vibration Analyst: Recognized expert in diagnosing critical rotating machinery faults.
- Certified Vibration Institute VI (USA) for Course Trainer







Co-Speaker: PE. Khoo Kay Leng,

Professional Engineer (Singapore). Co-speaker for energy saving session.

- BE(Electrical & Electronics), NUS 1976
- M Sc (Environmental Engineering) NTU 2002
- Registered EMA Licensed Switching Electrical Engineer(22 kV)
- 45 years in Public Utilities Board, Singapore
- Public Utilities Board Associate Trainer 2017 to 2025