

ENERGY1 Asia - Virtual instructor-led Training (Online)

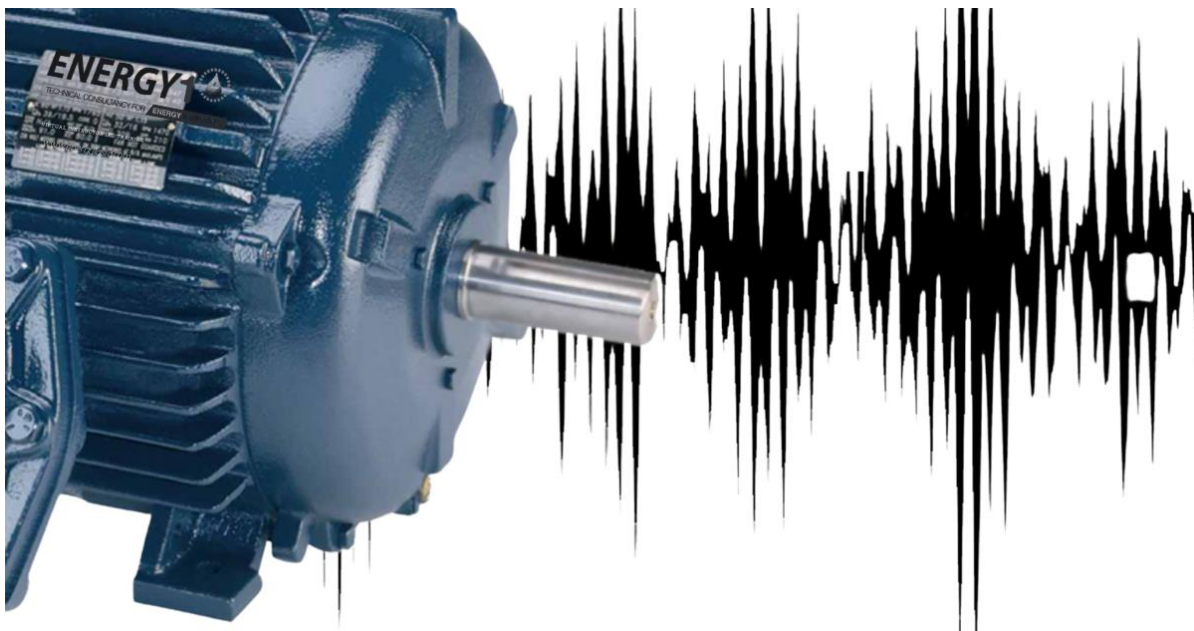
Due to the recent developments with COVID-19 we have, for the health and safety of our speakers and attendees, our selected multi-day courses will be delivered live online led by experience practitioners. This will enable you to experience a similar engagement experience to our successful traditional classroom setting which includes exercises, answering your question and provide feedback – all without having to travel anywhere!

Motor Current Signature Analysis

(Fault detection techniques using current signature analysis methods)

“Provide an in-depth analysis of the techniques used to assess the electric motor conditions focusing on the motor current spectrum analysis, for the detection and identification of the most common defects affecting our rotating machines.”

29th – 30th September 2021 | 09:00 – 13:30 (GMT+8) Daily | ONLINE Virtual instructor-led Training



Motor Current Signature Analysis (2 Half Days)

Online Virtual instructor-led Training

Motor Current Signature Analysis (MCSA) has been considered the most popular fault detection and isolation technique applied to electrical motors since it can easily detect and isolate the common electrical machines faults namely when applied to induction motors. It has proven to be a highly valuable predictive maintenance tool.

These **2 half-days Online Virtual instructor-led Training (VILT)** waste no time but focus directly on reviewing and examine typical electric motor faults / common defects. This will follow by an overview of different diagnostic test available to determine the condition of the electric motors and put into context the current signature analysis compared to the other techniques. Application of the technique on the different type of motors including the induction motors fed by VFD will also be discuss.

The second session will address state-of-the-art current signature techniques for diagnosing a variety of main defects. All type of detectable defects will be described (including the mechanical ones) such as - Rotor bar, Air gap Eccentricity, Rotor imbalance, Rotor misalignment, Fans, Motor foundation and Bearings. For each defect, the instructor will explain how the technique detect the issue and how to determine that from the test result.

MCSA test equipment/ instruments requirements are also discussed and a simple procedure for collecting and analysis the data is provided.

Attendees will further improve their practical knowledge on:

- **Common defects of electric motor:** Causes and consequences of the main defects which will help in assessing their assets.
- **Diagnostic test:** Knowing the advantages and limitations of the available diagnostic test allows to perform the proper test based on the motor life stage/condition.
- **Current Signature analysis techniques:** How to properly perform the current signature analysis from the data collection to the data interpretation for assessing the electrical motor.

This virtual training will provide in-depth understanding of the current signature analysis technique which can be directly applied to motors. It will also provide participant a guideline to properly utilize these techniques. This will be augmented by case studies to show some real examples of assessment / faults.

Advance your knowledge and learn about:

- Electric motor characteristics
- Typical defects
- Diagnostic techniques
- Current signature analysis principles
- CSA measurement techniques
- Current signature analysis of typical defects
- Condition assessment for electrical motors
- Motors management based on the condition assessment.

This program is intended for:

This comprehensive virtual course will be valuable to professionals who work in the power industry (Generation), Renewable energy, oil & gas plants, refineries, chemical & petrochemical plants, mining, manufacturing, fertilizer & process industries that uses all types of (HV, MV and LV) electric motor. Further, the techniques (MCSA) can be extended to generator.

- Electrical Engineer / Maintenance Engineers/Technicians
- Service engineering / Testing engineering,
- Engineering, Testing and Maintenance, Rotating Equipment Engineers
- Mechanical Engineers, Reliability Engineers, Production Engineers.
- Condition-based Monitoring Engineers
- Instrument Engineers
- Engineers involved in condition-based maintenance analysis.
- Anyone involved in wind power generators.
- Vibration analyst or engineer who wish to learn how to detect issues using current signature analysis beside vibration analyst.
- Engineers who wish to apply current signature analysis technique to theirs motors assessment. This can be extended to generators.

Motor Current Signature Analysis (2 Half Days)

(Fault detection techniques using current signature analysis methods)

Online Virtual instructor-led Training

DAY 1

Electric motor most common defects (broken rotor bars, abnormal airgap eccentricity, shorted turns in stator windings, shaft/coupling misalignment, stator core vibration characteristics and other mechanical problems)

- Description of the defects
- Main Causes
- Main Consequences

Overview of different type of rotating equipment focusing on:

- Classification
- Main Design Characteristics

Introduction of Asset management, RBM, CBM, and condition monitoring for electrical drive systems

Overview of available diagnostic tests used to determine the asset conditions.

DAY 2

Current Signature Analysis fundamentals

Detectable defects (broken rotor bars, abnormal airgap eccentricity, shorted turns in stator windings, shaft/coupling misalignment, stator core vibration characteristics and other mechanical problems):

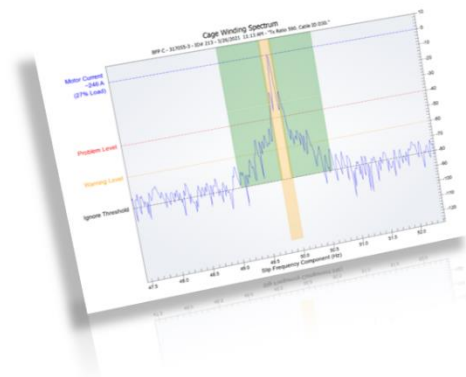
- Description
- Typical current signature patterns
- Effect of design and operational conditions

MCSA equipment:

- Main Characteristics
- Data collection
 - Requirement
 - Measurement setup
 - Data recording
 - Data review
- Data analysis

Real case studies

- Oil & Gas
- Power Generation
- Other Industry



Motor Current Signature Analysis (2 Half Days)

Virtual instructor-led Training

Registration Form

Motor Current Signature Analysis (Fault detection techniques using current signature analysis methods)	Per Participant	PROGRAM DETAILS ONLINE Virtual instructor-led Training Date: 29 th – 30 th September 2021 Time: 09:00 – 13:30 (GMT+8)
Full 2 Half Days	USD 1099 ()	STEPS TO REGISTER: Simply fill up the registration form and email it to: Email to : registration@petro1.com.my Call us : +603 7727 3952 Mobile /Whatsapp: +6012 568 4696 (Harn)
<ul style="list-style-type: none">The above investment fee is inclusive of e-course material.This course is limited to 15 attendees to ensure that the course can remain interactive.Please note the Online Virtual Instructor Led Training (VILT) time zone will be as "Malaysia/ Singapore" time zone (GMT+8).		
If you or your company is facing travel restrictions, we may be able to arrange the training at your preferred location for remote participation or conduct the training in-house with minimum 15 pax. Please contact ihtraining@petro1.com.my to discuss this possibility.		

Delegates Details

1. Name: _____ Mr Mrs Ms Dr

Job Title: _____

Email : _____

Contact No: _____

Department: _____

2. Name: _____ Mr Mrs Ms Dr

Job Title: _____

Email : _____

Contact No: _____

Department: _____

3. Name: _____ Mr Mrs Ms Dr

Job Title: _____

Email : _____

Contact No: _____

Department: _____

Head of Department: _____

Invoice Details

Invoice Attention to: _____

Company: _____

Industry: _____

Address: _____

Postcode: _____ Country: _____

Telephone: _____ Fax: _____

Email: _____

Authorized Signature : _____

Payment Method

By Direct Transfer: Please quote invoice numbers on remittance advice.

ACCOUNT NAME: PETRO1 SDN BHD

BANK : United Overseas Bank (Malaysia) BHD

ACCOUNT NO : 2609008514 (USD)

All bank charges to be borne by payers. Please ensure that PETRO1 SDN BHD received the full invoice amount.

CREDIT CARD PAYMENT

Credit card payment will include a charge 3.1%.

Payment Policy: Upon receipt of a completed registration form, it confirms that the organization is registering for the seat(s) of the participant(s) to attend the conference or training workshop. Payment is required with registration and must be received prior to the event to guarantee the seat. Payment has to be received 7 working days prior to the event date to confirm registration.

DATA PROTECTION

The information you provide will be safeguarded by Petro1 that may be used to keep you informed of relevant products and services. We take it seriously when it comes to protection of our client data.

Sales and service Tax (SST):

Apply to Malaysia register company only.

The above investment fee is excluding of SST 6%. The SST charges of 6% will be include during issuance of the invoices.

Cancellation & Substitutions:

Should you be unable to attend, substitutes are always welcome anytime at no additional cost. Please inform us as early as possible. Payment is non-refundable if cancellation occurs 7 working days prior to event commencement. However, delegates will receive a 100% credit on the amount paid which can be used in another PETRO1 SDN BHD training course for up to one year from the date of issuance. The credit is transferable to other persons in the same company and applicable against any future PETRO1 SDN BHD public course/ Online Live Webinar. If cancellation occurs 7 working days prior to the registration date and there is no substitute, the organizer reserves the right to charge 50% of the total investment from your organization.

In the event that, PETRO1 SDN BHD. postpones or cancels a course, delegate payments at the date of cancellation or postponement will be credited to a future PETRO1 SDN BHD course. This credit will be available for up to one year from the date of issuance, and it is transferable to other persons in the same company and applicable against any future PETRO1 SDN BHD public course.

PETRO1 SDN BHD is not responsible for any loss or damage as a result of a substitution, alteration or cancellation/postponement of an event. PETRO1 SDN BHD shall assume no liability whatsoever in the event this training course is cancelled, rescheduled or postponed due to a fortuitous event, Act of God, war, fire, labor strike, extreme weather or other emergency.

Program Change policy:

The organizer reserves the right to make any amendments and/or changes to the webinar, Date/ time, facilitator replacements and/or modules if warranted by circumstances beyond its control.

This course information may not be copied, photocopied, reproduced, translated, or converted to any electronic or machine-readable form in whole or in part without prior written approval of PETRO1 SDN BHD.