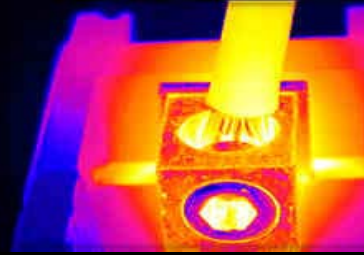


# Condition-Based Maintenance

## Total Approach to Failure Prediction and Analysis

November 12 to 13, 2012, El Cielito Inn, Sta. Rosa, Laguna



Thermography



Oil Analysis



Vibration Analysis



Ultrasonics

### Training Package Includes:

- Morning / Afternoon meals and Lunch
- Exercises and quizzes on CBM
- Softcopy of CBM training materials in CD
- Selected articles on CBM
- Actual Case Studies on CBM
- Certificate of Attendance

### Who Should Attend This Course :

- All Maintenance Professionals
- Maintenance Managers
- Maintenance Supervisors
- Lubrication Engineers and Technicians
- Facilities Managers
- Preventive Maintenance Group
- Predictive Maintenance and CBM Group
- Reliability Engineers and Managers
- Maintenance Schedulers and Planners
- Management and Decision Makers
- People in charge of their assets

### Brief Course Overview :

- This course shows the importance and benefits of a Condition-Based Maintenance (CBM) program. The benefits of such a program will be realized in greater equipment reliability and longevity while at the same time enhancing budgetary cost containment goals
- Operations and Maintenance will make a sound maintenance and operating decisions based on actual equipment performance rather than relying on the old standard of Time-Based maintenance intervals or even less desirable circumstance or waiting for the equipment to fail in service

### About the Resource Speaker:

Rolly, is a seasoned international reliability and maintenance consultant with 23 yrs of solid experience in the field. He had been invited in different countries and have conducted reliability and maintenance trainings in United Arab Emirates, India, Kuala Lumpur, Malaysia, Indonesia, Nigeria and Bangladesh. His portfolio of maintenance trainings include Maintenance Management courses on TPM, Lubrication, Tribology, Condition-Based Maintenance, RCM, RCFA, Planned Maintenance, World Class Maintenance Management, The 12 Disciplines, Oil Contamination Control, Life Cycle Management, Maintenance Indices and KPI's, Maintenance Management Strategies and much more. Rolly previously worked with Amkor Philippines, as a TPM Senior Engineer, an industry engaged in the manufacture of IC products and spear-headed their Planned Maintenance organization compose of maintenance managers and engineers. He was also responsible for the dramatic reduction of unplanned breakdowns in their TPM journey as well as RCM implementation on their Facilities AHU units and as well as their substation equipment. Rolly is currently working as an independent maintenance consultant and had released his first book on World Class Maintenance Management - The Twelve Disciplines.

### What to Expect on this Training

- Why doing Preventive Maintenance is limited and costly ?
- Understand when to use CBM and PdM Strategy
- Learn the basics about the most common type of CBM
- Learn why is Condition-Based Maintenance more cost effective than traditional Preventive Mtce ?
- Actual case studies on Condition-Based Maintenance
- What are the advantages and disadvantages on using CBM
- Why knowing the P-F curve is important in performing Condition-Based Maintenance
- How PdM/CBM can save you on maintenance costs

**ENROLL NOW**



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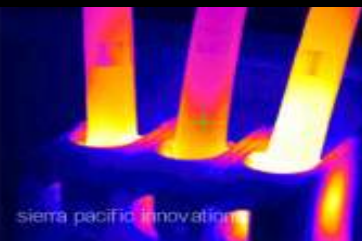


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### DAY 1

#### Module 1 : Why Preventive Maintenance is limited ?

- Traditional belief by most maintenance people
- Infant mortality, random and age-related Failures
- Understanding the 6 types of failure pattern
- Understand when Predictive Maintenance is feasible
- Comparing Preventive vs Predictive Maintenance

#### Module 2 : Understanding the Concept of Condition-Based Maintenance

- Predictive Maintenance defined
- Understanding the P-F interval
- Determining potential failure for equipment
- CBM as a maintenance strategy
- Benefits of a CBM program in your plant

#### Module 3 : CBM through Oil Analysis

- Understanding how oil is being contaminated and its effects
- Does oil really wear out
- Understanding nominal and absolute filtration
- Efficiency and beta rating of filters
- Understanding the basics of oil analysis
- Different levels of oil analysis tests
- Level 1 of oil analysis test, checking oil for its health and cleanliness through particle counter
- What is the most important oil analysis instrument
- How a particle counter works understanding ISO:4406:99 code

### DAY 2

#### Module 4 : CBM through Thermography

- Understanding the different lights in the Electromagnetic Spectrum
- Basic Principles of heat transfer, conduction, convection and radiation
- Understanding the principles of infrared
- Application of infared thermography for non-industries
- Importance of Certification Levels
- Application of infared thermography for industries

#### Module 5 : CBM through Vibration Monitoring

- What is machine vibration
- Why monitor vibration and how to measure it
- Time waveform analysis
- Fast Fourier Transformation
- Mounting of Accelerometer and sensors
- Causes of rotating machinery failure such as
  - Unbalance, Misalignment, looseness, soft foot and bearing faults
- Collecting and analyzing data on vibration
- Applications and benefits of vibration monitoring

#### Module 6 : CBM through Ultrasonic Monitoring

- Understanding the concept of sound
- Heterodyning, translating ultrasonic to the sonic range
- Application of Ultrasonic monitoring for industries

#### Module 7: How to Start a Condition-Based Maintenance Strategy in your plant

**ENROLL NOW**



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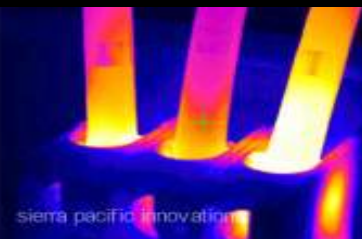


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### Training Investment Costs:

#### WCM Book Included

- 1 Delegate: Php 16,500.00 + 12% VAT
- 2 Delegates: Php 32,000.00 + 12% VAT
- 3 Delegates: Php 46,500.00 + 12% VAT
- 4 Delegates: Php 62,000.00 + 12% VAT
- 5 Delegates: Php 75,500.00 + 12% VAT

### Payment Procedure and Policy:

- Payment can only be accepted through cash or check basis. For payments in check kindly Pay to RSA Reliability and Maintenance Consultancy Firm.
- An Official Receipt will be provided after issuance of complete payment for this event.
- Payment should be done during registration, kindly advise the delegates to carry with them the payment for this training. To avoid future problems on our part No payment, No entry policy would be enforced on this seminar workshop.

### How To Register for this Event:

Step 1: Send us an email on the following:

- Full Name of Delegates: (FN, MI, LN)
- Position or Designation
- Department
- Name of Industry
- Type of Industry
- How is payment to be made Cash or Check

Step 2: Once we have confirmed the names of the people you are going to send, we shall provide you a confirmation email. Strictly no walk-in.

### Cancellation, Postponement Policy

- For delegates who will not complete the duration of the seminar and workshop, RSA Reliability and Maintenance Consultancy Firm will offer no refunds regarding this matter, certificates of attendance will only be provided to those delegates that will complete the three day seminar and workshop
- In the event that the seminar will be cancelled as a result of unforeseen events such as Acts of God or others uncontrolled reasons, RSA Reliability and Maintenance Consultancy Firm shall assume no liability whatsoever in the event this seminar and workshop be cancelled, postponed, move or rescheduled due to this fortuitous and unforeseen event.
- In case of a low turn out of delegates for this event, RSA Reliability and Maintenance Consultancy Firm reserves the right to cancel the event. An email will be sent to concerned parties.
- In the event you would like to cancel your participation in this seminar, kindly send us an email one week before the event is due. If you have made an advance payment and your delegates did not attend and have not informed us one week before the event, you will be charged with the full amount of the training fee.

### Our Contact Details:

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