

# VIBRATION ANALYSTS TRAINING COURSE

(ISO & ASNT Category II & Category III)

by C TECH INTER Co.,Ltd.



A five days training (Exam on the last day) enabling delegates to learn on vibration analysis for rotating machine, understand spectrum pattern & time wave form pattern for each problem and identify root cause.

## Design for

- Engineer and Technician in reliability team
- Mechanical Maintenance Engineer
- Maintenance Manager

## Aim and Objective

- Refresh vibration analysis knowledge.
- Increase understanding for vibration analysis of rotating machine.
- Diagnose faults confidently.

## Benefit

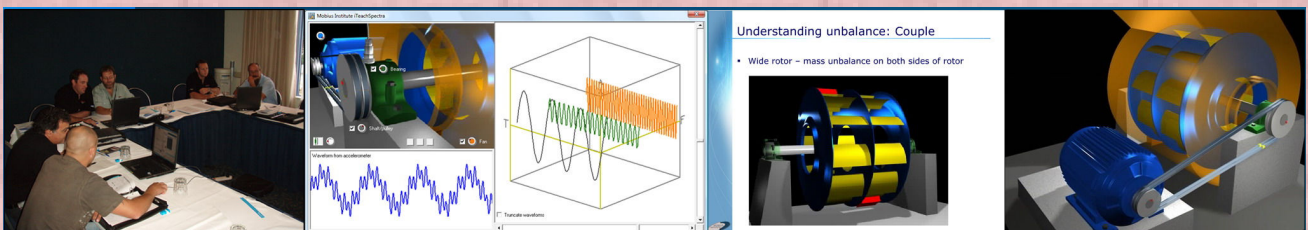
- Avoidance of costly failures and improved plant reliability
- Increased operational efficiency and more efficient plant maintenance
- Increased performance of Predictive Maintenance (Condition Base Maintenance)
- Lower operating costs
- Development of personal competences - opportunity to build up expert knowledge of vibration analysis in rotating equipment
- Improve quality and time related to diagnosis process

## OUR COURSES ARE DIFFERENT

Thankfully, Mobius Institute Vibration courses are different. In 2005 we began the development of three new courses, and we never stop improving them! Our courses utilize professionally developed slides, stunning 3D animations, and software simulations that make everything crystal clear. Just wait until you see, hear, and use the simulators!

It is not just animations and simulations that make our courses different. The day you register for the course, you are given on-line access to iLearnVibration to help you prepare for the course. You can use it for six months after the course too, just in case you do forget anything. And during the course you can use the simulators and real case studies to learn even more.

You get more out of a mobius Institute course.



## The Mobius Story



*Jason Tranter*

Mobius is an independent training company formed in 1999 by Jason Tranter. We have offices in Australia and the United States, and training partners in twenty countries. Our products and courses are translated to seven languages. We are passionate about vibration analysis and condition monitoring, and believe in the importance of good training.

We hope that you will join with thousands of other people around the world and participate in a Mobius Institute or iLearn course.

[www.mobiusinstitute.com](http://www.mobiusinstitute.com)

## Certification follows ISO and ASNT



Our basic, intermediate and advanced courses follow the ISO 18436-2 standard and the ASNT-SNT-TC-1A Recommended Practice. You can take the certification exam at the end of the course.

## Testimonials

"Simulator and Animation is very easy to understand." **Chevron, Thailand**

"It is a good course for Vibration Analyst Training in Thailand." **Siam Yamato Steel, Thailand**

"It is a great technique and animation to make me understand easily." **PTT AR, Thailand**

"I will join Vibration Analyst Level III for sure." **iRPC, INDORAMA POLYESTER, PTT CHEM, Thailand**

"By the way, your vibration training software is great. It's made a big difference in the success of our program."  
**Marianne Krantz - Johns Manville, USA**

"Your course is one of the best computer-based methods I have used (in fact it is the only one I would recommend, regardless of subject)." **Jim Gill - Equipment Diagnostics - Eastman Kodak Company**

"I'd like to take this chance to say that I found the Mobius Institute Vibration II course to be the most beneficial course that I have attended to date. The course tied together the concepts of the frequency domain, time domain and phase extremely well. The simulators gave a very clear visual understanding of the concepts. Being able to control the speed allowed for greater interrogation of the concepts." - **Keith Elson - Condition Monitoring Technician - Alcan Gove**

"I have recently finished iLearnVibration Level 2 training. I would recommend this to anyone as training that is REAL value for money. I have done a lot of training in my working life of 24 years and this is by far the best."  
**Paul Bing - Winstone Pulp**

# VIBRATION ANALYSTS TRAINING COURSE

(ISO Category II & ASNT Level II)

by C TECH INTER Co.,Ltd.



## VIBRATION ANALYSTS TRAINING COURSE (CAT II)

Programme	Course Information
<b>Day 1</b>	<p><b>Date:</b> Pls refer schedule page</p> <p><b>Vanue:</b> Pattaya, Thailand</p> <p><b>Language:</b> Thai / English (USA Instructor)</p> <p><b>Required:</b> Laptop Computer</p> <p><b>Standard Rate:</b> Bht 69,800+ per delegate (The fee includes lunches, refreshments, Training Document and Examination.)</p> <p><b>Payment:</b> If you do not receive your letter of confirmation before the event, please contact us to confirm that a place has been reserved on : Tel : + (66 38) 609 611 Fax: + (66 38) 609 613 Email: <a href="mailto:info@ctechinter.com">info@ctechinter.com</a></p> <p><b>Cancellation:</b> If you are unable to attend, a substitute delegate is welcome to attend in your place at no additional charge. A full refund, less 10% administrative charge, will be given if cancellation is received in writing before 2 months. A 50% refund and documentation will be given if cancellation is received in writing before 1 month. No refunds can be made for cancellation received after less than 1 month in advance.</p>
08:00 – 10:00 Introduction	
10:00 – 12:00 Maintenance Practices Breakdown Maintenance Preventive Maintenance Predictive Maintenance	
12:00 – 13:00 Lunch	
13:00 – 15:00 Condition Monitoring Why do we do it? How do we do it?	
15:00 – 17:00 Vibration Fundamentals What is vibration? Phase, Time Waveform and Spectrum	
<b>Day 2</b>	
08:00 – 10:00 Vibration Fundamentals (con't) Introducing Forcing frequency Signal and overall reading	
10:00 – 12:00 Measuring Vibration Basic of measuring Vibration Selecting a Transducer / Vibration Unit	
12:00 – 13:00 Lunch	
13:00 – 14:00 Measuring Vibration (con't) Collecting Routine Measurements Measuring Phase	
14:00 – 17:00 Data processing Understanding Sampling and FFT, Aliasing, Sampling Windowing, Dynamic Range, Averaging	
<b>Day 3</b>	
08:00 – 12:00 Vibration Analysis Problem Detection / Setting Alarm Limits Analyzing Vibration / Root Cause Analysis & Verification	
12:00 – 13:00 Lunch	
13:00 – 17:00 Machine Fault Diagnosis Imbalance , Misalignment, Looseness, Rotor Rub Journal bearing faults, Resonance, Bearing Fault	
<b>Day 4</b>	
08:00 – 12:00 Machine Fault Diagnosis (con't) Pump & Fan faults, Compressors, Reciprocating machine Electric Motor faults, Gearbox Analysis, Belt Drive faults	
12:00 – 13:00 Lunch	
13:00 – 16:00 Running a Successful Program	
16:00 – 17:00 Question & Answer	
<b>Day 5</b>	
09:00 – 12:00 Exam	

**\*\* Coffee breaks to be held approximately every 1-1.5hrs. \*\***

# VIBRATION ANALYSTS TRAINING COURSE

(ISO Category III)

by C TECH INTER Co.,Ltd.



## VIBRATION ANALYSTS TRAINING COURSE (CAT III)

Programme	Course Information
<b>Day 1</b>	<p><b>Date:</b> Pls refer schedule page  <b>Vanue:</b> Pattaya, Thailand  <b>Language:</b> English (USA Instructor)  <b>Required:</b> Laptop Computer</p> <p><b>Standard Rate:</b> Bht 81,800+ per delegate                      (The fee includes lunches, refreshments, Training Document and Examination.)</p> <p><b>Payment:</b> If you do not receive your letter of confirmation before the event, please contact us to confirm that a place has been reserved on :                      Tel : + (66 38) 609 611 Fax: + (66 38) 609 613                      Email: <a href="mailto:info@ctechinter.com">info@ctechinter.com</a></p> <p><b>Cancellation:</b> If you are unable to attend, a substitute delegate is welcome to attend in your place at no additional charge. A full refund, less 10% administrative charge, will be given if cancellation is received in writing before 2 months. A 50% refund and documentation will be given if cancellation is received in writing before 1 month. No refunds can be made for cancellation received after less than 1 month in advance.</p>
08:00 – 10:00 Condition Monitoring	
10:00 – 12:00 Signal Processing	
12:00 – 13:00 Lunch	
13:00 – 15:00 Time waveform Analysis	
15:00 – 17:00 Phase Analysis	
<b>Day 2</b>	
08:00 – 12:00 Natural Frequencies and Resonance	
12:00 – 13:00 Lunch	
13:00 – 15:00 Operating Deflection Shape Analysis	
15:00 – 17:00 Modal Analysis	
<b>Day 3</b>	
08:00 – 10:00 Correction Resonance	
10:00 – 12:00 Rolling element bearing analysis	
12:00 – 13:00 Lunch	
13:00 – 17:00 Journal bearing analysis	
<b>Day 4</b>	
08:00 – 12:00 Electric motor analysis Pumps, fans, compressors analysis Gearbox analysis	
12:00 – 13:00 Lunch	
13:00 – 16:00 Balancing rotating machinery Shaft alignment Generating alarms statistically ISO Standard	
16:00 – 17:00 Question & Answer	
<b>Day 5</b>	
08:00 – 12:00 Exam	

**\*\* Coffee breaks to be held approximately every 1-1.5hrs. \*\***

## VIBRATION ANALYSTS TRAINING COURSE

(ISO Category II & ASNT Level II)

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### List of Thai Companies who attended the course

PTT Gas Separation Plant	INDORAMA POLYESTER
PTT CHEM	iRPC
PTT AR	Siam Yamato Steel
Chevron Corporation	Pearl Oil
GE Energy	Thai Industrial Gas
ITT Fluid	Bangkok Industrial Gas
Bayer	Siam Poongsan Metal

### List of World Wide Companies who attended the course

3M	Gulf Petrochemical Industrial
ABB	Johnson Controls Inc
Andersen & Hurley	Jordan Technoliges
BMW	Kellogg Company
Boeing	Kimberley Clark
BP Oil & Refinery	LH Marthinusen
CARGILL	Loher GMBH
Caterpillar	Mobil Oil
Chevron Corporation	NDT Technology
Clipper Windpower Inc	Nestle Mexico
Coca Cola Amatil	Nike
Conoco Phillips	Nissan
DOOSAN HEAVY IND.	PETRONAS
Dow Chemical	Pfizer
DuPont Kevlar	Rockwell Automation
EMC	Schaeffler Industrial
Emerson	Shell Oil & Refinery
ESSO Anglo Exploration Ltd	Siemens Energy
Exxon Mobil	SKF Reliability Service
Flowserve	TIMKEN Reliability Service
Ford Motor Company	TOTAL
Fortum Power & Heat	TOYO
GE Wind & Energy	TRANE
General Motors	UNILEVER
GKN Driveline Celaya	US NAVY
Goodyear Dunlop Tire Na Ltd	Whirlpool Corp

VIBRATION ANALYSTS TRAINING COURSE  
SCHEDULE 2011

by C TECH INTER Co.,Ltd.



**Quarter III / 2011**

July - September '11

Vibration Analyst Cat II (THAI)	Vibration Analyst Cat II(ENG)	Vibration Analyst Cat III (ENG)
July 25 - 29, 2011	Sep 19-23, 2011	Sep 26 - 30, 2011

**Quarter IV / 2011**

October '11	November '11	December '11

**VIBRATION ANALYSTS TRAINING COURSE**  
(ISO Category II & ASNT Level II) **THAI INSTRUCTOR**

by C TECH INTER Co.,Ltd.



**Three ways to register**

By Phone +66 38 609 611	By Fax +66 38 609 613	By E-mail info@ctechinter.com
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**Training Register Form (July 25 - 29, 2011)**

Please register the following delegate(s) for : Vibration Analysts Training Course

Name: \_\_\_\_\_ Position: \_\_\_\_\_

Company: \_\_\_\_\_

Address : \_\_\_\_\_

City : \_\_\_\_\_ Post Code : \_\_\_\_\_ Country : \_\_\_\_\_

Phone : \_\_\_\_\_ Fax : \_\_\_\_\_ Mobile: \_\_\_\_\_

E-mail : \_\_\_\_\_

Type of business : \_\_\_\_\_

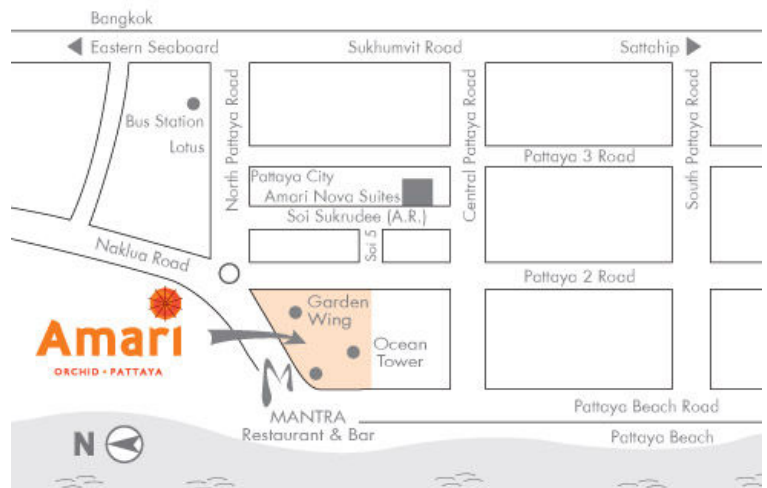
Fee for one delegate	Standard Rate (Thai Baht)	Early Bird** Rate (Thai Baht)
Registration Fee	69,800	65,800
-3 % Withholding Tax	2,094	1,974
+7 % VAT	4,886	4,606
<b>Total Paid</b>	<b>72,592</b>	<b>68,432</b>

\*\* Payment have to be processed 1 month before first training date.

**Hotel Information**

Amari Orchid Pattaya  
Pattaya Beach Road (North Pattaya)  
Tel. +66 (0) 3841 8418  
Fax. +66 (0) 3841 8410

GPS: 12°56'54.60"N 100°53'8.22"E



**VIBRATION ANALYSTS TRAINING COURSE**  
(ISO Category II & ASNT Level II) **USA INSTRUCTOR**

by C TECH INTER Co.,Ltd.



**Three ways to register**

By Phone +66 38 609 611	By Fax +66 38 609 613	By E-mail info@ctechinter.com
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**Training Register Form (September 19 - 23, 2011)**

Please register the following delegate(s) for : Vibration Analysts Training Course

Name: \_\_\_\_\_ Position: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Address : \_\_\_\_\_  
 City : \_\_\_\_\_ Post Code : \_\_\_\_\_ Country : \_\_\_\_\_  
 Phone : \_\_\_\_\_ Fax : \_\_\_\_\_ Mobile: \_\_\_\_\_  
 E-mail : \_\_\_\_\_  
 Type of business : \_\_\_\_\_

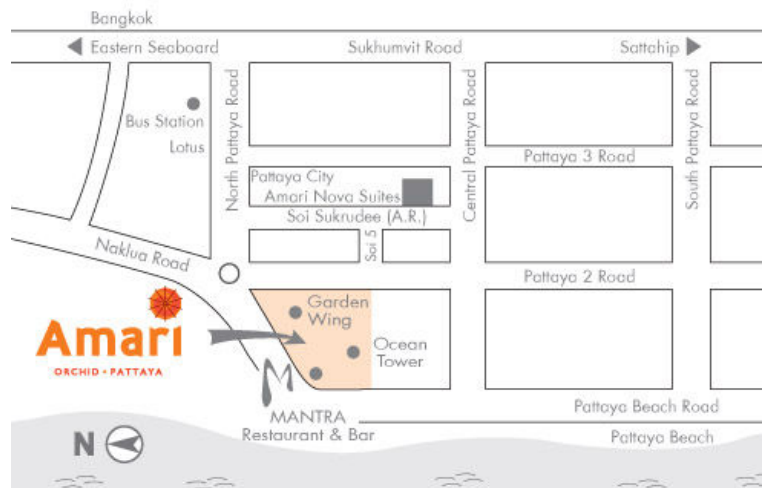
<b>Fee for one delegate</b>	<b>Standard Rate (Thai Baht)</b>	<b>Early Bird** Rate (Thai Baht)</b>
Registration Fee	69,800	67,800
-3 % Withholding Tax	2,094	2,034
+7 % VAT	4,886	4,746
<b>Total Paid</b>	<b>72,592</b>	<b>70,512</b>

\*\* Payment have to be processed 1 month before first training date.

**Hotel Information**

Amari Orchid Pattaya  
 Pattaya Beach Road (North Pattaya)  
 Tel. +66 (0) 3841 8418  
 Fax. +66 (0) 3841 8410

GPS: 12°56'54.60"N 100°53'8.22"E



**VIBRATION ANALYSTS TRAINING COURSE**  
(ISO Category III & ASNT Level III) **USA INSTRUCTOR**

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**Three ways to register**

By Phone +66 38 609 611	By Fax +66 38 609 613	By E-mail info@ctechinter.com
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**Training Register Form (September 26 - 30, 2011)**

Please register the following delegate(s) for : Vibration Analysts Training Course

Name: \_\_\_\_\_ Position: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Address : \_\_\_\_\_  
 City : \_\_\_\_\_ Post Code : \_\_\_\_\_ Country : \_\_\_\_\_  
 Phone : \_\_\_\_\_ Fax : \_\_\_\_\_ Mobile: \_\_\_\_\_  
 E-mail : \_\_\_\_\_  
 Type of business : \_\_\_\_\_

Fee for one delegate	Standard Rate (Thai Baht)	Early Bird** Rate (Thai Baht)
Registration Fee	81,800	77,800
-3 % Withholding Tax	2,454	2,334
+7 % VAT	5,726	5,446
<b>Total Paid</b>	<b>85,072</b>	<b>80,912</b>

\*\* Payment have to be processed 1 month before first training date.

**Hotel Information**

Amari Orchid Pattaya  
 Pattaya Beach Road (North Pattaya)  
 Tel. +66 (0) 3841 8418  
 Fax. +66 (0) 3841 8410

GPS: 12°56'54.60"N 100°53'8.22"E

