

# Integrated Condition Monitoring

## COURSE DESCRIPTION

### Vibration Analysis: Level III

#### COURSE AGENDA

##### *Day 1*

- Brief Review of Analysis 2
- How to and How Not to Create Effective Narrow-band Spectral Alarm Envelopes
- Proper Use of High Frequency Demodulated and Enveloped Spectra

##### *Day 2*

- Introduction to Motor Current Spectral Analysis
- Analysis of DC Motors
- Time Waveform Analysis
- Operating Deflection Shape Analysis (ODS)

##### *Day 3*

- How to Analyze Low Speed and High Speed Machines
- Analysis of Variable Speed Machines
- How to Evaluate and Communicate Your Condition Monitoring Program Achievements



#### COURSE NUMBER: EK-ICM301

##### *Course Purpose*

More in depth coverage and focused demonstration of many of the techniques presented in the Vibration Analysis 1 and 2 courses are presented in this advanced course. Several powerful techniques are presented to increase the effectiveness of experienced vibration analysts. These advanced techniques include high frequency envelope signal analysis, time waveform and deflection shape analysis. The analysis of high speed, low speed and variable speed machinery is presented with consideration of the special transducer and instrumentation requirements of these applications.

##### *Who Should Attend*

This course will advance the expertise of mechanics, technicians, engineers or analysts involved in the maintenance or operation of plant machinery.

### ***Prerequisites***

To successfully complete this course, students should have 18 months or more of field experience along with previous attendance to the Vibration Analysis 2 (EK-ICM261) or similar course.

### ***Student Materials***

To enhance and facilitate students' learning experience, the following materials are provided to each student as part of the course package:

- *Student Manual*, which contains the key concepts, definitions, and examples presented in the course, including:
  - *Alarm Settings*, with advanced methods for specifying narrowband alarm levels to detect and focus in on machinery problems.
  - *AC and DC Motor Analysis Techniques*, discuss use of vibration and Motor Current Signature Analysis (MCSA) for induction motors and vibration data for common DC control card faults.
  - *Low Speed, High Speed and Variable Speed Machine Analysis Techniques*, provides detailed information on proper setup and analysis of these special machine types.
  - *Real-World Case Histories*, are included throughout the text to illustrate the advanced analysis techniques discussed.

### ***Next Learning Level***

Once students have mastered the fundamental skills covered in this course, they will have the knowledge and skills necessary to attend additional Integrated Condition Monitoring technology or product training. In particular, this course will benefit those students enrolling in the *Emonitor Advanced* course (Course No. EK-ICM221).

### ***Course Length***

This is a three-day course with an optional half-day test on the fourth day.

### ***Course Number***

The course number is EK-ICM301.

### ***IACET CEUs***

CEUs Awarded: 2.1



### ***To Register***

To register for this or any other Rockwell Automation training course, contact your local authorized Allen-Bradley Distributor or your local Sales/Support office for a complete listing of courses, descriptions, prices, and schedules.

You can also access course information via the Web at <http://www.rockwellautomation.com/training>

**[www.rockwellautomation.com](http://www.rockwellautomation.com)**

### **Power, Control and Information Solutions**

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846