



Professional Education and Training

Short Course Programme

**Condition Monitoring Fundamentals**

### Introduction

The aim of condition monitoring is to monitor those parameters that provide information about the changes in condition or/and performance of item/system. The philosophy of condition monitoring is therefore the assessment of the current condition of an item/system by the use of techniques which can range from human sensing to sophisticated driven instrumentation, in order to determine the need for performing preventive maintenance task, in continuous and non-continuous manner. Hence, the CM recognises that a change in condition is the principle reason for carrying out maintenance tasks, which means that scheduled maintenance tasks are not performed as long as the condition of the item/system is acceptable in accordance of agreed criteria.

A condition parameter could be any characteristic, which is directly or indirectly connected with the system and its performance, and describes the condition of the system during operating life. In practice, it is possible to detect several condition parameters, which are connected with the system and its constituent items. Only some of them have direct connection with failure mechanisms and therefore ability for describing the condition of the system, while others will help in understanding the condition of the system as a whole. In order to assess the condition of the item/system, in engineering practice, MIRCE Mechanics ([www.mirceakademy.com](http://www.mirceakademy.com)) has created the concept of the Relevant Condition Indicators (RCI) and relevant Condition Predictors (RCP).

### Objectives

By the end of this course you will be able to:

- Understand the fundamentals of condition based maintenance concept
- Understand the difference between condition indicators and predictors
- Understand how to determine the frequencies of condition inspections
- Understand how to determine the frequencies of condition examinations
- Understand condition monitoring methods for indicators and predictors
- Understand condition monitoring technologies for indicators and predictors

### Condition Monitoring Methods

- Concept of Condition Based Maintenance
- Concept of Relevant Condition Parameters
  - Relevant Condition Indicators
  - Relevant Condition Predictors
- Inspection Based Maintenance
- Examination Based Maintenance
- Diagnostics Methods and Principles
- Prognostics Maintenance Methods
- Prognostics Maintenance Models
  - Frequency of Inspections
- Frequency of Examinations

### Condition Monitoring Techniques

- Vibration
- Tribology
- Performance
- Non-Destructive Testing
  - Magnetic particle inspection
  - Eddy current testing
  - Acoustic emission
  - Thermography
  - Radiography
  - Ultrasonic inspection
  - Liquid penetrants

Large number of real life examples, from Dr Knezevic's extensive experience, will be used to illustrate the points made, ranging from Defence Equipments to Formula 1 cars.

**Length:** 3 days

<b>Key Information</b>	
<b>Dates</b>	Please see website: <a href="http://www.mirceakademy.com">www.mirceakademy.com</a> .
<b>Time</b>	0900 – 1700
<b>Venue</b>	Woodbury Park Hotel, Golf and Country Club –approximately eight miles by road from Exeter (the nearest major city).
<b>Cost</b>	Please see website – <a href="http://www.mirceakademy.com">www.mirceakademy.com</a> .
<b>Accommodation</b>	<p>Accommodation is not included in the course fee. Participants are responsible for the arrangement and payment of their accommodation. Reduced rates are available at Woodbury Park Hotel – contact Woodbury Park Hotel Reservations direct requesting the ‘MIRCE’ rate. Contact details are –</p> <p>Woodbury Park Hotel, Golf and Country Club, Woodbury, Exeter, EX5 1JJ, United Kingdom</p> <p>Tel       +44 (0) 1395 233 382  Fax       +44 (0) 1395 233 384  Email    <a href="mailto:enquiries@woodburypark.co.uk">enquiries@woodburypark.co.uk</a>  Web       <a href="http://www.woodburypark.co.uk">www.woodburypark.co.uk</a></p> <p>A list of alternative accommodation in other hotels and guesthouses in the area of the course venue is available from MIRCE Akademy on request.</p>
<b>Booking</b>	Please complete a Booking Form for each participant and return it to MIRCE Akademy – available to download at <a href="http://www.mirceakademy.com">www.mirceakademy.com</a> .

## Contact us

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