

3-Day Certified Reliability Centered Maintenance (RCM) Workshop

Advancing to the next level of maintenance with a comprehensive technical integration of RCM and the latest software to boost your organisation's profit margin

Dubai, UAE

22nd – 24th July 2019

In Collaboration with:



This 3-Days Training Course will be Certified by the International RCM Certification Committee (IRCC) once delegates achieve >80% on the online examination which will be facilitated on the 3rd day of the workshop

Participants are required to bring their laptops on Day-3 for:

- Case Study using DORA Software
- Online Examination

Your Expert Course Trainer:

Rik Plattel Director
European Reliability Centre, Netherlands
Founder & Chairman

International RCM Certification Committee (IRCC)

Rik Plattel started as a ships engineer. He joined SKF as a rolling bearing expert for many years and was responsible for the service department, training department and after market troubleshooting. Then he became maintenance manager and later as operations manager in a large production plant of Superfos Packaging. He studied Reliability-centred Maintenance up to RCM Level 4 (RCM examiner). Currently, Rik is the director of the European Reliability Centre and founder and chairman of IRCC (International RCM Certification Committee)

Pre- course questionnaire

To ensure that you gain maximum benefit from this training, a detailed questionnaire will be sent to you to establish exactly where your training needs lie. The completed forms will be analysed by the course trainer. As a result, we ensure the course is delivered at an appropriate level and that relevant issues will be addressed. The comprehensive course material will enable you to digest the subject matter in your own time.

Science can amuse and fascinate us all, but it is **engineering** that changes the world.

Isaac Asimov

The probability of success is dependent on the accurate calculation of reliability

marcusevans

Attend this Premier Training and Gain Insights Into:

- **Utilising** new RCM techniques within your plants to optimise maintenance
- **Differentiating** RCM as the proven method compared to other maintenance techniques
- **Incorporating** best maintenance strategies for optimum reliability results in your operations
- **Integrating** the right Key Performance Indicators (KPIs) to evaluate and improve performance in maintenance
- **Implementing** RCM successfully with a comprehensive knowledge on the maintenance strategy

Testimonials:

This training gave us an insight into maintenance planning in detail.

Saudi Aramco, KSA

Arrangements in terms of facility and material was excellent.

Sohar Aluminium, Oman

The training helped us to schedule and plan more effectively.

Saudi Electricity Company, KSA

Everything, it was excellent.

Saudi Chevron, KSA

marcus evans Training Courses are Thoroughly Researched and Structured to Provide Intense and Intimate Practical Training to your Organisation. Our Format:

- Strictly limited seats
- Pre-course questionnaires
- An in-depth tailored programme to address current concerns
- Diverse real life case examples
- Comprehensive course documentation

Day One

Monday 22nd July 2019

Session One

Introduction to Reliability Management techniques

- Development of maintenance methodologies in time
- Past - Present - Future of Reliability Management
- Influence of Internet, Internet of Things and Big Data
- Using existing FME(C)A's
- Analysing CMMS data
- The need of managing ACTUAL failure behaviour
- Introduction of Reliability-centred Maintenance (RCM)

Case Study: Discussion of used pros and cons of known approaches

Session Two

The RCM methodology

- Breaking down International RCM standards SAE JA1011 and JA1012
- Comprehending the RCM terminology
- Overview of all RCM dialects/RCM brands that apply to the RCM standards
- Any RCM process shall ensure that all of the following steps are performed in the sequence shown:
 - Determine the operational context, functions and associated desired standards of performance of the asset (operational context and functions)
 - Determine how an asset can fail to fulfil its functions (functional failures)
 - Determine the causes of each functional failure (failure modes)
 - Determine what happens when each failure occurs (failure effects)
 - Classify the consequences of failure (failure consequences)
 - Determine what should be performed to predict or prevent each failure (tasks and task intervals)
 - Determine if other failure management strategies may be more effective (one-time changes)

Group Discussion: What is the advantage of this team based approach?

Session Three

Zooming into Criticality and Failures

- Criticality assessments using Risk Priority Numbering
- Differences between Object and Process FMEA/FMECA
- Determining when to use which process
- Deep-diving into Failures:
 - Failure Modes
 - Failure Patterns
 - Potential Failures
 - Functional Failures
 - Hidden Failures
 - Failure Consequences
 - Failure Management Policy

Case Study: Using Failure Modes to Determine the Quality of both FMEA and FMECA

Session Four

Selecting and Setting Up the Analysis

- Finding high-medium-low critical systems in order to select the right methodology
- Setting up an asset tree and a process tree
- Preparing data from CMMS's
- Setting up an Operational Context
- Describing related functions

Group Discussion: Maintaining Assets or Failure Behaviour of Assets

Programme Schedule:

0830	Registration and morning coffee
0900	Workshop commence
1030	Morning refreshment and networking break
1045	Workshop re-commence
1215	Networking luncheon
1330	Workshop commence
1500	Afternoon refreshment
1515	Workshop re-commences
1645	Workshop concludes

marcus evans would like to thank everyone who has helped with the research and organisation of this event, particularly the course leader, who has kindly committed and supported the event.

Day Two

Tuesday 23rd July 2019

Session One

Scrutinising the Categories of Failure Behaviour

- Describing Functional Failures
 - Functional Failure types
 - The importance of the Functional Failure

Case Study: Characterising Functional Failures of Assets

Session Two

Comprehensive Analysis on Failure Behaviour

- Interpreting Failure Modes
 - Using the RCM checklist
 - Case Study: Discussing failures and failure modes
- Process FMEA versus Object FMEA
- FMEA versus FMECA
- Use of the checklist to select a FMEA/FMECA

Case Study: Selection process for Object/Process FME(C)A

Session Three

Distinguishing the Effects of Failure Behaviour

- Diagnosing failure effects
- Classifying different types of failure effects
- Finishing a RCM Process FMEA

Case Study: Examining Failure Effects within an Organisation

Session Four

The Maintenance Concept

- Outlining the RCM Decision Diagram
 - Selecting a failure consequence category
 - Selecting the maintenance task type:
 - On-condition tasks
 - Discard tasks
 - Restoration tasks
 - Combination of tasks
 - Failure finding tasks
 - Redesign Mandatory/Desirable
 - Corrective tasks

Case Study: Developing the Maintenance Concept

Case Study: Nesting the Maintenance Concept > Maintenance Plan

Who Should Attend:

General Managers, Managers, Supervisor, Heads, Team Leaders of:

- | | |
|------------------------------------|-------------------------------------|
| • Plant Operations | Engineering/Reliability Engineering |
| • Plant and Site Management | • Operational Excellence/ |
| • Asset and Reliability Management | Continuous Improvement |
| • Shutdown / Turnaround | • Plant Services/ Critical Support |
| • Planning / Scheduling | Systems Management |
| • Asset Management | • Plant and Refinery |
| • Engineering and Maintenance | • Factory |
| • Production and Manufacturing | • Technical Services |
| • Process Engineering/ Industrial | • Integrity |

From the following industries:

- | | |
|--------------------------------|---------------------|
| • Oil and Gas | • Industrial Gasses |
| • Chemicals and Petrochemicals | • Automotive |
| • Power and Utilities | • Steel |
| • Heavy Industries | • Cement |
| • Engineering firms | |

In-House Training Solutions:

If you have a number of delegates with similar training needs, then you may wish to consider having an In-House Training solution delivered locally on-site. Course can be tailored to specific requirements.

Day Three

Wednesday 24th July 2019

Booking Line:

Muhammad Naseem

Tel.: +9221 3279 9008

Fax: +9221 3278 2477

Email: MohammadN@marcusevanspk.com

Session One

Maintenance and Project Engineering (MPE)

- Using MPE to measure the effectiveness of an analysis
- Introduction of the Quick Maintenance Methodology
- The QM decision process
- Demonstration of QM in DORA software

Group Activity: Calculating the MPE

Case Study: Using DORA Software to Set Up a QM

Session Two

Maintenance Task Interval

- Calculating the Maintenance Task Interval
- Dissecting the different types of tasks involved:
 - On-condition tasks
 - Discard tasks
 - Restoration tasks
 - Combination of tasks
 - Failure finding tasks

Case Study: Calculating Tasks Interval for All Task Types

Session Three

Integrating QM Analysis within your Maintenance Plans

- Nesting maintenance concepts into maintenance plans
- Continuous improvement and optimisation of your maintenance plans
- QM case study in DORA software

Group Activity: Demonstration of a RCM and QM analysis in DORA software. Participants have Level 1 access to DORA

Session Four

Wrap- Up Session

- Recap of training objectives and sessions

IRCC Level 1 RCM Online Examination

This 1-hour examination will cover all the elements and fundamentals learned over the course of this 3-day training. Participants would need to achieve a score of >80% in order to receive the RCM Level 1 Certificate by the IRCC.

Why You Cannot Miss This Event:

Reliability-centred Maintenance is a process to determine what must be done to assure systems continue to do what their owner wants them to do in their present operating context. RCM is a team driven methodology which is managed by a RCM facilitator. This approach was initially developed in the civil aviation and is used by all industrial segments that need to manage failure behaviour in order to optimise **C.A.R.E. (Cost – Availability – Reliability – Effectiveness)**. The team describes the actual failure behaviour in a FMEA process which is used in a RCM decision diagram to develop the maintenance concept. This maintenance concept is nestled into a maintenance plan which updates the CMMS regularly. But maintenance plans are never finished. Failure behaviour changes in time and so does the FMEA. The continuous improvement of actual data is an important part of **"Become Better Each Day"** and part of this training course.

This **Certified RCM Level 1** training course is the fundamental training for all team members. It covers the **37 RCM definitions** and the basics of the full RCM methodology in three days. RCM Level 1 is needed to start a RCM Level 2 training (RCM facilitator).

After the training course, the attendees will be able to:

- **Evaluate** the effectiveness of present maintenance plans
- **Assess** which assets or systems require the proper methodology to optimise maintenance
- **Determine** if current maintenance plans are developed in the right way
- **Measure** what is needed to continuously improve C.A.R.E.
- **Establish** new and optimise existing maintenance plans for high critical systems as a RCM team member
- **Develop** new and optimise existing maintenance plans for low critical systems with the Quick Maintenance (QM) methodology

Join us now and be prepared to take away key practices that will turn your organisation into a beacon of excellence.

About the Facilitator:

Rik Plattel started as a ships engineer. He joined SKF as a rolling bearing expert for many years and was responsible for the service department, training department and after market troubleshooting. Then he became maintenance manager and later as operations manager in a large production plant of Superfos Packaging. This led to increasing interest in Reliability Management. He studied Reliability-centred Maintenance up to RCM Level 4 (RCM examiner). Rik is director of the European Reliability Centre and founder and chairman of IRCC (International RCM Certification Committee).

Clients:

His clients are found in many industrial sectors around the world: Food, Packaging, Shipping, Plastics, Waste, Water, Power, Nuclear, Mining, Pharmaceutical, Chemical, Oil & Gas. Rik focuses most of his time teaching and mentoring clients with RCM implementations. Most customers are large production plants.

Software:

From 2001 onwards, the European Reliability Centre (ERC) B.V. developed DORA software, together with 16 Best-In-Class industrial production sites from different industrial sectors. DORA facilitates RCM workgroups, the development of new maintenance plans and optimising existing maintenance plans. The maintenance plans which are developed in DORA will update the maintenance programs in SAP, Maximo, JD Edwards, Infor or other CMMSs. DORA offers three methodologies for high – medium – low criticality processes / systems / assets.

DORA supports three methodologies:

- RCM for high critical systems.
- ODM (Object Driven Maintenance) for medium critical systems.
- QM (Quick Maintenance) for low critical systems.

These three methodologies use RCM definitions. RCM is a team based approach with the highest quality. It is thorough and needs time to get the high quality. QM is 15x faster, less thorough and can be executed by single persons. ODM is a mix of RCM and QM. DORA supports nesting Maintenance Concepts into Maintenance Plans. In order to prevent Garbage in as Garbage out, DORA users need to understand the used methodologies. This Certified RCM Level 1 Training Course covers the basics. Participants are able to work in DORA during the training course.

Collaborating Partners:



The **European Reliability Centre (ERC)** advises, trains and assists production companies in the continuous improvement of production processes. ERC specialises in implementation of RCM, Facilitation during RCM - ODM - QM analyses, training on the job for maintenance and reliability engineers, coaching with the implementation of dynamic maintenance plans, auditing of existing maintenance methods, bearing damage analysis and implementation of lubrication maintenance. The European Reliability Centre is an official member of the International RCM Certification Committee (IRCC).



The **IRCC (International RCM Certification Committee)** is an independent non-profit organisation of RCM examiners (RCM Level 4) which certifies students to RCM Level 1-2-3 according to the International RCM standards SAE JA1011 and SAE JA1012. RCM is a methodology that is used on critical assets, systems and processes. The methodology can only be executed by people who proved they are able to manage the RCM Process in the right way. IRCC standardised the competency levels for this reason. IRCC certifies students for any organisation that uses RCM. The IRCC offers to audit the quality of maintenance plans as well. Professional maintenance plans are using a FMEA or FMECA to describe the failure behaviour of assets, systems or processes. The quality of this FME(C)A is checked by our staff and we will send you a report with remarks, ideas, comments. The overview gives you an idea how to increase the value of your maintenance plans.

3-Day Certified Reliability Centered Maintenance (RCM) Workshop

REGISTRATION FORM

Please complete in **BLOCK CAPITALS** and return this form digitally using the **desktop Acrobat Reader software**, or by submitting a printed version via scan or fax. Some fields are not compatible with iOS or Android devices.

EVENT CODE: ME-MTT5173

LOGIN ID:

CODE: E

PLEASE COMPLETE THIS FORM AND FAX BACK TO:

MUHAMMAD NASEEM

FAX NO: **+9221 3278 2477**

REGISTRATION FEES

FEES

3 Days Professional Training Fee USD 2,495

Premier Plus Discount* Bring more delegates to this event and benefit from:

10% saving for 2 Delegates 15% saving for 3-4 Delegates 20% saving for 5+ Delegates

A processing fee of USD 48 will be added per delegate. Domestic taxes will be added if applicable per delegate.

REGISTRATION DETAILS

1.) Name _____

Position _____

E-Mail _____

2.) Name _____

Position _____

E-Mail _____

3.) Name _____

Position _____

E-Mail _____

To ensure your personal assistant also receives confirmation details please add their details below

Name _____

E-Mail _____

Organisation _____

Address _____

Town _____ State _____

Country _____ Postcode _____

Tel. _____ Fax _____

Nature of Business. _____

Company Size: 1-9 10-24 25-49 50-99

100-249 250-499 500-999 1000+

AUTHORISATION

Signature _____ Date _____

Name _____

Position _____

This booking is invalid without a signature.

AUTHORISATION Signatory must be authorised to sign on behalf of contracting organisation

Booking Line:

Muhammad Naseem

Tel.: +9221 3279 9008

Fax: +9221 3278 2477

Email: MohammadN@marcusevanspk.com

TRAINING: 3-DAY CERTIFIED RELIABILITY CENTERED MAINTENANCE (RCM) WORKSHOP

DATES, VENUE: 22ND – 24TH JULY 2019, DUBAI, UAE

PAYMENT METHOD

CREDIT CARD

Payment is required within five working days on receipt of invoice (Credit Card payments attract a 2% surcharge)

Please charge my: MasterCard VISA AmEx Diners Club

Card Holder's Name _____ Security Code _____

Card Number _____

Expiry Date _____ Signature _____

Confirmation Details:

After receiving payment a receipt will be issued. If you do not receive a letter outlining joining details two weeks prior to the event, please contact the Training Coordinator at **marcus evans** trainings.

Payment is required within five working days on receipt of invoice

Indemnity: Should for any reason outside the control of **marcus evans** trainings, the venue or course leader change, or the event be cancelled due to an act of terrorism, extreme weather conditions or industrial action, **marcus evans** trainings shall endeavour to reschedule but the client hereby indemnifies and holds **marcus evans** trainings harmless from and against any and all costs, damages and expenses, including attorneys fees, which are incurred by the client. The construction, validity and performance of this Agreement shall be governed in all respects by the laws of Malaysia to the exclusive jurisdiction of whose Courts the Parties hereby agree to submit.

Terms & Conditions: **marcus evans** Marcus Evans (M) Sdn. Bhd.

1. Included: Fees are inclusive of all programme materials, refreshments, and a 24% service charge.
2. Additional Charges: Should a portion of the Agreement price be at the time of acceptance or at any time in the future be subject to state, federal, or local taxation, or VAT or other applicable sales tax, **marcus evans** reserves the right to add such charges to the final invoice or recover such sums from the Client at the time when they become due.

3. Payment Terms: Following completion and return of the registration form, full payment is required within 5 days from receipt of invoice. PLEASE NOTE: payment must be received prior to the training date. A receipt will be issued on payment. Due to limited training space, we advise early registration to avoid disappointment. A 50% cancellation fee will be charged under the terms outlined below. We reserve the right to refuse admission if payment is not received on time.

4. Cancellation/Substitution: Provided the total fee has been paid, substitutions at no extra charge up to 14 days before the event are allowed. Substitutions between 14 days and the date of the event will be allowed subject to an administration fee of equal to 10% of the total fee that is to be transferred. Otherwise all bookings carry a 50% cancellation liability immediately after a signed sales contract has been received by **marcus evans** (as defined above). Cancellations must be received in writing by mail or fax six (6) weeks before the training is to be held in order to obtain a full credit for any future **marcus evans** training. Thereafter, the full training fee is payable and is non-refundable. The service charge is completely non-refundable and non-creditable. Payment terms are five days and payment must be made prior to the start of the training. Nonpayment or non-attendance does not constitute cancellation. By signing this contract, the client agrees that in case of dispute or cancellation of this contract that **marcus evans** will not be able to mitigate its losses for any less than 50% of the total contract value. If, for any reason, **marcus evans** decides to cancel or postpone this training, **marcus evans** is not responsible for covering airfare, hotel, or other travel costs incurred by clients. The training fee will not be refunded, but can be credited to a future training. Event program content is subject to change without notice.

5. Copyright etc: All intellectual property rights in all materials produced or distributed by **marcus evans** in connection with this event is expressly reserved and any unauthorized duplication, publication or distribution is prohibited.

6. Data Protection: Client confirms that it has requested and consented to **marcus evans** retaining client information on **marcus evans** group companies database to be used by **marcus evans** group companies and passed to selected third parties, to assist in communicating products and services which may be of interest to the client. If the client wishes to stop receiving such information please inform **marcus evans** local office or email unsubscribe@marcusevansuk.com. For training and security purposes telephone calls may be recorded.

7. Important note. While every reasonable effort will be made to adhere to the advertised package, **marcus evans** reserves the right to change event dates, sites or location or omit event features, or merge the event with another event, as it deems necessary without penalty and in such situations no refunds, part refunds or alternative offers shall be made. In the event that **marcus evans** permanently cancels the event for any reason whatsoever, (including, but not limited to any force majeure occurrence) and provided that the event is not postponed to a later date nor is merged with another event, the Client shall receive a credit note for the amount that the Client has paid to such permanently cancelled event, valid for up to six months to be used at another **marcus evans** event. No refunds, part refunds or alternative offers shall be made.

8. Governing law: This Agreement shall be governed and construed in accordance with the law of Malaysia and the parties submit to the exclusive jurisdiction of the courts in Kuala Lumpur. However, **marcus evans** only is entitled to waive this right and submit to the jurisdiction of the courts in which the Client's office is located.

9. Client hereby acknowledges that he/she specifically authorizes that **marcus evans** charge the credit card listed above for the amount provided herein; that this Contract is valid, binding and enforceable; and that he/she has no basis to claim that any payments required under this Contract at any time are improper, disputed or unauthorized in any way. Client acknowledges that they have read and understood all terms of this contract, including, without limitation, the provisions relating to cancellation.

APPROVALS (HEAD OF DEPARTMENT):

FOR INTERNAL OFFICE USE:

marcus evans

4th Floor, Tower A, Technology Park, ST-8
Shahra-e-Faisal, Karachi, Pakistan

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