



FMM Institute

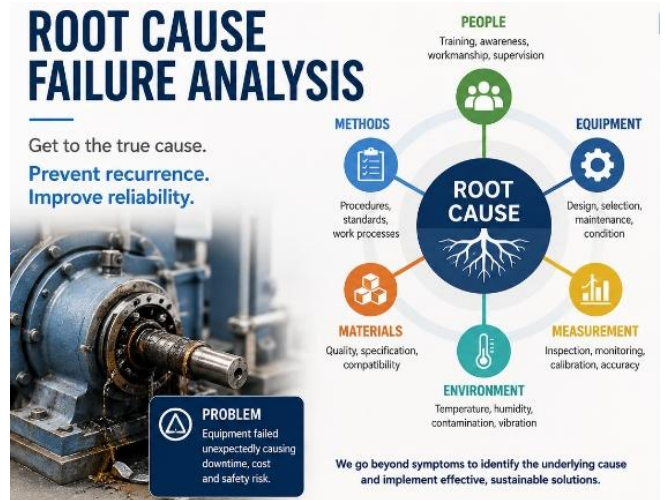
Co. No: 199901000527 (475427-W)
Perak Branch



ROOT CAUSE FAILURE ANALYSIS FOR MAINTENANCE

July 15-16, 2026 (Wednesday-Thursday) 8.45 am – 5.00 pm FMM Institute, Perak

Failures of machines and equipment have many causes. The actual root causes may be hidden deep inside the components of machines and equipment in terms of material of construction, corrosion, stress processes, etc, or other associated aspects surrounding, in terms of operation, maintenance, inspection, methods, human machine interface and the overall management. Notwithstanding the causes of failure, incidents having Health, Safety and Environment (HSE) outcomes from failures while in service are increasingly being seen globally. Such incidents result not only in serious human injuries but also fatalities resulting from major consequential incidents such as fire, explosion, toxic/lethal releases, etc. The concerned industry must pay due attention to root causes of such failures and do everything possible to prevent, minimize and contain these failures. Delayed escalation of incidents beyond control of an organization can wipe out the assets and end the business of a company. RCFAM provides an organization with a systematic methodology and actions to minimize/eliminate the failures which ultimately harm the people, damage the equipment or property, cause loss of production or mete out adverse impact.



OBJECTIVES

Root Cause Failure Analysis for Maintenance (RCFAM) course will equip the participants to:

- Fundamental concepts around failures of machines and equipment, both moving and static
- Understand relationship between failures of machines and equipment and the associated HSE incidents
- Comprehend failure mechanisms of various identified major machines and equipment
- Learn and use RCFAM to arrive at root and generic causes of failures of machines and equipment
- Check effectiveness of the implementation of CAP's and PAP's
- Understand and practice skills to draft and generate RCFAM Report
- Comprehend the importance of RCFAM Close-out
- Cascade lessons learnt from the failure Incident and the RCFAM Report
- Address accurately the various Insurance, Legal and Statutory Implications

WHO SHOULD ATTEND

- Maintenance – Managers, Engineers, Supervisors, Technicians
- Operations – Managers, Engineers, Supervisors & Line functions Personnel
- Others – Inspection, HSE Professionals, Non-line functions such as office managers and finance professionals dealing with insurance and statutory compliances

TRAINER

MR RAJANDRAN A/L KRISHNASAMY holds a Diploma in Mechanical Engineering from Federal Institute of Engineering, KL and a Certificate in Electronics from Seremban Electronics. He started his career with Motorola Semiconductor in the area of Equipment Maintenance Function and grew steadily to become an Equipment Engineer. He later joined QDOS Microcircuits as a Production Section Head and subsequently joined a Japanese MNC as a Training Department Section Head and then as Engineering Section Head and Safety Officer hitherto.

MR RAJANDRAN is a certified trainer registered with PSMB and has conducted numerous programmes such as Total Productive Maintenance, Basic Mechanical Maintenance, Occupational Safety & Health Management System and Supervisory Management. In the past, he has conducted training courses for Samsung, Northern Telecom, Globetronics Technology, ISO Technology and SMCI Globetronics Technology. In addition, he has also won the Gold Medal as a Total Productive Maintenance Coordinator for Equipment in the FinalTest Department in a Total Customer Satisfaction Competition held in Chicago, USA.

COURSE CONTENTS

Module 1 : INTRODUCTION TO ROOT CAUSE

FAILURE ANALYSIS FOR MAINTENANCE

- Purpose of RCFAM
- Effective use of RCFAM
- Organizational Benefits
- Personal Benefits

Module 2 : FUNDAMENTAL CONCEPTS

- Concept of Reliability and Failure
- Maintenance Concept
- Maintenance Task Classification
- Maintenance Policies

Module 3 : FAILURE ANALYSIS TOOLS

- Failure Mode Effects Analysis
- Cause-and-Effect Analysis
- Functional Block Diagram (FBD)
- Root Cause Failure Analysis Incident Investigation

Module 4 : ROOT CAUSE FAILURE ANALYSIS

METHODOLOGY

- Reporting a Failure Incident or Problem
- Perceived Causes of Problem
- Failure Incident Classification MHSE
- Operating, Economic Performance and Regulatory Compliance
- Collecting Physical Evidence
- Analyze Sequence of Events
- Maintenance Review: Operating, SOPs, Maintenance History and the associated Procedures and Practices
- Observations & Measurements: Vibration Analysis, Process Parameters, Visual Inspection, Measurement Devices, Failed Machine Components, Wear Particles and Other testing techniques: NDT (Non-Destructive Testing)

Module 5 : DETERMINING THE FAILURE ROOT

CAUSE(s)

- Poor Design Practices
- Procurement Practices: Inadequate Specifications, Substitutions, Low Bid versus Lifecycle Cost, Vendor Evaluations,
- Poor Operating, Inspection & Maintenance Practices and Procedures
- Poor Training
- Inadequate Supervision
- Ineffective Communication
- Faulty Human Engineering

- Work Environment: Physical and Psychological
- Management Systems

Module 6 : EVALUATING POTENTIAL CORRECTIVE ACTIONS

- Involvement of SMEs (Subject Matter Experts)
- HSE Risk Assessment Matrix and Regulatory Requirements
- Costs Involved: Process, Materials, Labour, Training, other considerations.
- Cost-Benefit Analysis
- Management Decision

Module 7 : REPORT AND RECOMMENDATIONS

- Failure Incident Summary
- Failure Incident Description
- Immediate Corrective Actions
- Causes and Long-Term Corrective Actions
- Internal and External Reports Filed
- Lessons Learned, References And Attachments
- Verification of Implementation of Corrective Action and Its Effectiveness

Module 8 : HSE-RELATED ISSUES

- Fatigue
- Physical Impairment
- Personal Problems
- Repetition/Boredom
- Machine-Human interface not friendly
- Operations Problems/Short-cuts/capacity stretching
- Economic Considerations to avoid HSE best practices
- Inspection and maintenance priorities side-lined

Module 9 : DESIGN EVALUATION ASPECTS

- Compressors, Fans, Blowers
- Driving Conveyors and Conveyor Belts
- Fasteners
- Seals And Packing
- Preventive Trouble Shooting for The Above Machines & Equipment to Avoid Failures

Module 10 : Live Failure Incidents, Case Studies and Exercises to do RCFAMHSE

- Failure Videos and discussions
- RCFAMHSE methodology with respect to one incident case study
- RCFAMHSE Investigation Reports
- Question and answers

COURSE DETAILS

Date **July 15-16, 2026 (Wednesday-Thursday)**
Time **8.45am - 5.00pm**
Venue **FMM Institute Perak**
No 1, Lorong Raja DiHilir, 30350 Ipoh, Perak

Medium of Instruction: **English**

CPD **14 hours**

Fees **Members RM1,134.00/pax**

Non-Members RM1,296/pax

(Fees inclusive of Service Tax at 8%, Course Materials, Refreshment, Lunch and Certificate of Attendance)

**Register in Groups &
Enjoy More Savings!**

- 2-4 participants: 10% discount
- 5-7 participants: 15% discount
- 8-9 participants: 20% discount

Closing Date: JUNE 24, 2026

ADMINISTRATIVE DETAILS

HRD CORP CLAIMABLE COURSE DETAILS

- Training Provider: **FMM Institute Perak**
- MyCoID : **475427W_PERAK**
- HRD Corp Programme No: **Provided upon confirmation**

DISCLAIMER

The FMM Institute reserves the right to change the facilitator, date and to vary / cancel the course should unavoidable circumstances arise. All efforts will be taken to inform participants of the changes.

REGISTRATION

- Upon **Faxing/Mailing** the completed **Registration Form** to FMM Institute, you are **deemed** to have read and **accepted** the terms and conditions. The **course** would also be **deemed** as **confirmed** unless informed otherwise.
- Will be based on First-Come-First served basis.

PAYMENT

- **Cheques** made in favour of "**FMM Institute**" should be forwarded to FMM Institute Perak.
- For **HRD Corp Claimable Course**, an **Attendance of 100%** is a **must**, in any case, **employers will be billed in full**.
- FMM Institute SST Registration No. **W10-1901-32000105**
- FMM Institute TIN No. **C10626805080**

CANCELLATION

Must be in Writing with Reasons ▪ 7 days before the course – No payment charged ▪ 3 – 6 days before the course - 50% payment charged ▪ < 3 days before the course – Full payment charged ▪ Participants who did not turn-up will be charged full payment ▪ Replacements can be accepted at no additional cost

~ **Registration Form** ~

ROOT CAUSE FAILURE ANALYSIS FOR MAINT ENANCE

FMM Institute
No 1, Lorong Raja DiHilir, 30350 Ipoh, Perak

Fax: 05-5488221

Dear Sir / Madam, please register the following participant(s) for the above programme.

1.	Name	Designation	
		HP No	
	NRIC	Email	
2.	Name	Designation	
		HP No	
	NRIC	Email	
3.	Name	Designation	
		HP No	
	NRIC	Email	

(Please attach a separate list if space is insufficient)

We hereby confirmed that *(Please tick (✓) in appropriate box):-*

- We **will be claiming from HRD Corp** and full payment would made to FMM Institute in the event that no disbursement from HRD Corp under any circumstances
- We will **NOT BE CLAIMING from HRD Corp**. Enclosed cheque/bank draft No _____ for RM _____ being payment for _____ participant(s) made in favour of the "**FMM Institute**".

Submitted by:

Name:	Designation:		
Company:	Tel:	Fax:	
Address:			
Email:	FMM Membership No		

Enquiries – please contact **Ms Vaani / Pn Eda / Ms Harvindar** ☎ (05) 548 8660 📠 (05) 548 8221 ✉ fmm_institute_perak@fmm.org.my