

Root Cause Failure Analysis [RCFA] - An Overview

Overview

This course is designed to provide the delegate with a thorough overview of the Root Cause Failure Analysis (RCFA) process coupled with a sound knowledge of the underlying principles. The fundamental principles are established and then built upon using a combination of advanced presentation techniques, informal delegate instructor interaction and formal scripted syndicate and individual exercises. The course begins by defining RCFA and then considers generic plant equipment troubleshooting examples.

The subsequent modules cover the analytical tools used by the RCFA Analyst and addresses the requirements of each stage of the RCFA methodology. A short conclusion session rounds off the day and allows the delegates to consolidate their knowledge and allows points of clarification to be addressed.

This course is currently aimed at the Manufacturing / Production Engineering sector but can be tailored to other engineering environments on request.

Target Audience

This course is suitable for both those with a 'hands on' role and for management grades who require a basic understanding of the potential, the processes and of the problems associated with RCFA. The course will act as an introduction to RCFA and forms a sound foundation upon which future development can be based.

Objectives and Utility

On completion of this training course the delegate will understand the need for and the scope of RCFA. They will have gained an understanding of the technical and management issues pertinent to a RCFA study and knowledge sufficient to enable a competent individual to understand and support RCFA.

The delegate will benefit professionally from the knowledge which has been given, and the sponsoring organisation gains personnel who understand RCFA and are confident about its use in the workplace.

The individual is better equipped for their role and they will have undergone a degree of personal development through the expansion of their knowledge base.

The Training Process

The course establishes the basic principles of RCFA and some of the analytical tools used in the methodology.

The course is supplemented by practical and syndicate exercises in order to reinforce the training and to facilitate retention. The exercises will be based on relevant examples in order to ensure that they are as realistic and effective as is practically possible.

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Course Programme

Day 01 - AM

113-T-C Root Cause Failure Analysis (RCFA) - Defined

This module establishes the reasons why RCFA is an important approach to solving significant failures and problems within an engineering environment. The basic background information and key RCFA principles are established in this module.

116-T-C Troubleshooting Examples

Most equipments are susceptible to certain Root Causes of failure. This module provides examples of common Root Causes and their associated symptoms on generic plant equipment.

Three practical exercises re-inforce the need to differentiate between Root Causes and symptoms when considering plant failures.

114-T-C Failure Modes & Effects Analysis (FMEA)

In order for the RCFA Analyst to fully appreciate the reason for and the requirements of a Failure Modes and Effects Analysis (FMEA) it is necessary to fully understand the principles behind this technique. This module identifies the details of an FMEA in relation to RCFA and shows the delegate how to interpret this information once collected. After all, information is of little use if it is ignored or misinterpreted.

This module includes a practical FMEA exercise.

032-T-C Fault-Tree Analysis (FTA) - Overview

The Fault Tree Analysis (FTA) tool is explained and delegates conduct a practical exercise in this module.

The FTA is another tool that is central to the RCFA process. It is often used inappropriately and therefore time, effort and money is wasted.

The FTA is a valuable tool in terms of Safety and the determination of Root Causes and Common Mode Failures.

Day 01 - PM

125-T-C Multiple Cause Diagrams

The Multiple Cause Diagram is another tool that is central to the RCFA process and this module details use of the tool and through a practical exercise allows delegates to practise the theory presented.

The Multiple Cause Diagram is a valuable tool in terms of identifying causal chains and understanding the sequence of events leading up to a significant failure event.

115-T-C RCFA Methodology Overview

This module provides an introduction to the basic stages of RCFA and their place within a RCFA study. The aims are to raise the delegate's level of awareness of each stage of the process, whilst providing an introduction to the RCFA Algorithms and to ensure that they have a grasp of the individual concepts that are a pre-requisite to an understanding of the complete RCFA process.

126-T-C RCFA Overview Conclusion

This module incorporates an exercise to consolidate lessons learnt during the day and concludes with a brief summary of the key points of the course.