Holistic Asset
MANAGEMENT

2023 COURSE PROSPECTUS

Holistic Asset Management is a leading provider of advanced reliability engineering technology and services to asset intensive industries.

Together we can
Co-Create a new Story of your Asset Reliability and Performance

Whether you need some support to achieve your goals, a complete reliability program, training or something in between.

Your Asset Performance and Reliability Story can change, we're ready to lead you into that future.

Proudly partnering with:

ReliaSoft

APOLLO
Root Cause Analysis™

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HolisticAM - Our Story

Who we are?

Holistic Asset Management is a leading provider of advanced reliability engineering technology and services to the asset intensive industries. Headquartered in Brisbane, Australia.

We work with our customers to develop tailored solutions that meet the needs of their individual operations and help them realise significant savings in their maintenance costs.

We are proud of the reputation we have earned as a reliable and advanced engineering services provider to the mining industry. Our commitment to our customers is to provide the most reliable and advanced engineering solutions that will help them improve their reliability management systems and ultimately reduce their operational costs.

Why we do our business?

We believe that managing assets can bring great value contribution to an organisation's success.

We have witnessed many organisations facing asset issues in their operation process. They are from various industries, but the problems they have are quite similar. We know how to solve these frustrations, and most importantly, we know the numerous benefits behind it.

We are passionate about asset management; we understand it, we get it. We believe the value from effective asset management will not only benefit throughout the asset lifecycle, but also contribute to the entire organisation. We hope to help organisations recognise, believe, and see the real value of managing assets through on-the-job training and the resulting business outcome.

How we do our business?

Our philosophy and methodology involves seamless integration with your business processes, working alongside your organisation's teams and identifying value-adding opportunities to improve asset performance. We hold ourselves accountable for delivery and the realising of value from the improvement opportunities that we work with.

FUNDEMENTALS OF RELIABILITY ENGINEERING

Reliability engineering is a critical discipline that ensures that systems, products, and processes perform as intended with minimal failure.

The Fundamentals of Reliability Engineering course is designed to provide participants with a thorough understanding of the principles and practices of reliability engineering. The course will cover the basics of reliability, including metrics, asset criticality, failure modes, maintenance strategies and tactics, and the tools and techniques used to ensure reliability. Participants will also learn how to bring all these concepts together to create reliable systems, products, and processes.

Who Should attend?

The Fundamentals of Reliability Engineering course is ideal for individuals who are interested in understanding the principles and practices of reliability engineering.

Specifically, the course is beneficial for engineers, technicians, maintenance personnel, and anyone who is involved in the design, installation, operation, or maintenance of systems, products, or processes.

The course is also valuable for managers who are responsible for ensuring the reliability and safety of their organization's assets.

In addition, individuals who are interested in pursuing a career in reliability engineering can benefit from the course. The course provides a solid foundation in the principles and practices of reliability engineering, which can be applied in a variety of industries.

Pre-requisites

There are nil pre-requisites for this course.

Course Topics

- Introduction to Reliability
- Reliability Fundamentals
- Reliability Metrics
- Asset Criticality
- Understanding Failure Modes
- Maintenance Strategies & Tactics
- Bringing it all together

Classroom Course **2 Days**

www.holisticam.com.au info@holisticam.com.au

Learning Objectives

- ✓ Understand the basics of reliability engineering, including the history, definitions, and key concepts
- ✓ Understand the impact of reliability engineering on product quality and customer satisfaction
- ✓ Understand the concepts of reliability, including metrics, asset criticality, and understanding failure modes
- ✓ Understand the various metrics used to measure reliability, including mean time between failures (MTBF), mean time to repair (MTTR), and availability
- ✓ Identify process of determining asset criticality and how it affects reliability
- ✓ Understand the different types of failure modes
- ✓ Understand the different maintenance strategies and tactics used to ensure reliability, including preventive maintenance, predictive maintenance, and corrective maintenance
- ✓ Develop an understanding of the importance of continuous improvement and how to use data-driven approaches to improve reliability over time

FMEA/FMECA FOUNDATIONS COURSE

The Foundations of FMEA/FMECA course is designed to provide participants with a comprehensive understanding of Failure Mode and Effects Analysis (FMEA) and Failure Mode, Effects, and Criticality Analysis (FMECA). This course will equip participants with the knowledge and skills necessary to identify potential failures and their effects, determine their root causes, and prioritize corrective actions.

The course will cover the steps involved in conducting a FMEA/FMECA analysis, including the preparation and planning stage, the identification and evaluation of potential failure modes, and the development of corrective actions to mitigate the risks.

By the end of the course, participants will have a solid understanding of FMEA/FMECA, its applications, and its role in risk management. They will be equipped with the skills and knowledge necessary to conduct a comprehensive FMEA/FMECA analysis in their respective fields.

Who Should attend?

This FMEA/FMECA course is designed for individuals who are involved in product design, development, and manufacturing, as well as those who are responsible for quality control and risk management.

The course is also relevant for individuals who are involved in process improvement initiatives and those who are seeking to enhance their knowledge of risk management methodologies.

Overall, anyone who is interested in understanding how to identify and mitigate potential failures and risks in a systematic and proactive manner can benefit from attending a FMEA/FMECA course

Pre-requisites

There are nil pre-requisites for this course.

Course Topics

- Introduction to FMEA/FMECA
- FMEA/FMECA Process Overview
- Assembling a Cross Functional Team
- Defining System Boundary and Asset Hierarchy Structure
- Gather and Review Relevant Information
- Identify Functions
- Identify Failure Modes and Causes
- Identify Failure Effects
- Identify Severity Rating
- Identify Occurrence Rating
- Identify Current Controls
- Identify Detection Rating
- Determining Risk Priority Number
- Undertaking Criticality Analysis
- Action and Maintenance

Classroom Course **2 Days**

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Learning Objectives

- ✓ Describe the steps of the FMEA/FMECA process
- ✓ Understand the importance of each step in the FMEA/FMECA process
- ✓ Understand the importance of defining the scope of the FMEA/FMECA analysis
- ✓ Identify the key factors to consider when determining the system boundary and asset hierarchy
- ✓ Understand how to define and create a function statement
- ✓ Understand how to define and create a failure mode and cause statement
- ✓ Understand how to write an effect(s) statement
- ✓ Understand the key sources and methods to understand what controls are currently in place
- ✓ Learn how to determine and interpret RPN scores and use them to prioritise risks and determine appropriate mitigation strategies.
- ✓ Understand the principles of criticality analysis to prioritise risks and determine appropriate mitigation strategies
- ✓ Understand key activities involved in the action and maintenance stage of a FMEA/FMECA

RCM FOUNDATIONS COURSE

Reliability-Centered Maintenance (RCM) is a methodology for developing maintenance programs that aim to increase equipment reliability, availability, and performance while reducing costs and risks. It is a structured and systematic approach that is designed to identify the most effective and efficient maintenance strategies for each piece of equipment in a plant or facility.

The RCM methodology is based on a set of principles that emphasise the importance of understanding equipment failure modes and their consequences, selecting the most appropriate maintenance strategies, and continuously improving maintenance programs.

By following these principles and applying a rigorous analysis process, organisations can develop maintenance programs that are tailored to their specific needs and that prioritise critical equipment.

This RCM course is designed to provide participants with a solid foundation in the RCM methodology. It covers the principles and processes of RCM, as well as the different techniques used for RCM analysis and implementation.

Through case studies and practical exercises, participants will gain a thorough understanding of how RCM can be applied in their workplaces to improve equipment reliability and reduce maintenance costs.

The course also explores the challenges and benefits of using RCM, and provides participants with the tools and techniques necessary to implement RCM in their organisations.

Who Should attend?

Anyone involved in the maintenance and reliability of complex systems or equipment can benefit from attending a RCM course, as it provides a structured approach to analysing and optimising maintenance strategies that can lead to improved equipment reliability, reduced downtime, and increased profitability.

Pre-requisites

There are nil pre-requisites for this course.

Course Topics

- Introduction to RCM
- RCM Principals and Processes
- Assembling a Cross Functional Team
- Defining System Boundary and Asset Hierarchy Structure
- Gather and Review Relevant Information
- Identify Functions and Performance Standards
- Identify Failure Modes and Causes
- Identify Failure Effects
- Identify and Categorise Failure Consequences
- Maintenance Task Selections

Classroom Course **3 Days**

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Learning Objectives

- ✓ Describe the seven RCM principles/questions
- ✓ Understand the importance of each step in the RCM process
- ✓ Understand the importance of defining the scope of the RCM Analysis
- ✓ Identify the key factors to consider when determining the system boundary and asset hierarchy
- ✓ Understand how to define functions and performance standards
- ✓ Understand how to define and create a failure mode and cause statement
- ✓ Understand how to write an effect(s) statement
- ✓ Understanding the importance of identifying and categorising failure consequences in RCM analysis.
- ✓ Understanding the different types of maintenance tasks
- ✓ Understand how to select maintenance task
- ✓ Understand how to determine the maintenance task frequency
- ✓ Understand the P-F Interval
- ✓ Understand key activities involved in the action and sustain stage of a RCM

MAINTENANCE PLAN OPTIMISATION

This course, we will explore the key concepts and strategies for optimising maintenance plans to improve asset reliability, reduce costs, and increase efficiency.

In our Maintenance Plan Optimisation course, data and analytics are the foundations. Starting with data collection and data cleansing, we convert relevant and high-quality asset performance data into actionable information.

Every result in our Maintenance Plan Optimisation is quantifiable to enable your organisation to determine if you are on track to reach the goals.

Who Should attend?

This course is beneficial for individuals who are involved in the design and analysis of complex systems, such as systems engineers, design engineers, and reliability engineers.

Pre-requisites

It is recommended to complete the Weibull Analysis and Reliability Block Modelling course, as these key concepts feature in the maintenance plan optimisation flow.

Course Topics

- Data Preparation and Analysis
- Modelling and Simulation
- Development and Implementation
- Validation and Improvement

Classroom Course | **3 Days**

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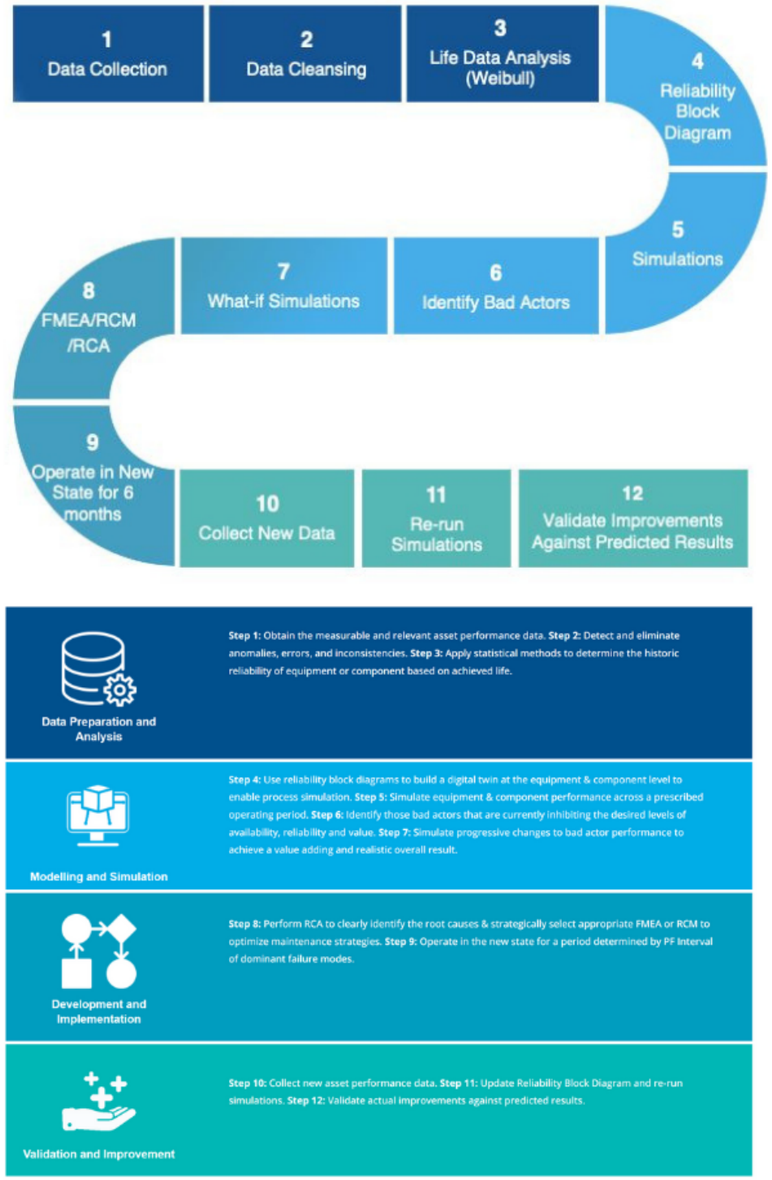
MAINTENANCE PLAN OPTIMISATION FLOW



Learning Objectives

- ✓ Learn how to collect data, and cleanse the data sets prior to analysis
- ✓ Learn how to apply statistical methods to determine the historic reliability of equipment or component based on achieved life
- ✓ Learn how reliability block diagrams are used to build a digital twin at the equipment & component level to enable process simulation
- ✓ Learn how to Identify those bad actors that are currently inhibiting the desired levels of availability, reliability and value
- ✓ Simulate progressive changes to bad actor performance to achieve a value adding and realistic overall result.
- ✓ Learn the importance of what-if simulations to assist with decision making
- ✓ Learn methods to identify the root causes & strategically select appropriate FMEA or RCM to optimize maintenance strategies
- ✓ Understand the key concepts to validate maintenance plans and improve

ReliaSoft BlockSim

Weibull++

Holistic Asset MANAGEMENT

APOLLO ROOT CAUSE ANALYSIS

1. Why does something happen?
2. What caused it?
3. What is the reality of that relationship and the situation it brings about?

These are all fundamental questions we ask ourselves all the time. It's an essential part of being human. But while people pursue a single cause for an event, we teach that there is no single reality, but a common reality rooted in evidence-based causal relationships.

Once we understand this common reality, we can predict the outcome of certain scenarios, and thus recognise various patterns that lead to controlling the causes to guide us in reaching our goals. Causal relationships are the root of this understanding - the better we understand them, the more likely we are to attain our goals both as a group and individually.

Apollo Root Cause Analysis is becoming the standard for all event analysis because it is the only process that understands and follows the cause-and-effect principles, this it is the only process that allows all stakeholders to create a clear and common reality to promote effective solutions every time.

Understanding the Apollo RCA methodology is a **four step process:**

Step 1: Define the problem
Step 2: Determine the causal relationships
Step 3: Identify effective solutions
Step 4: Implement and track solutions

Who Should attend?

RCA courses are attended by engineers, quality managers, and process improvement specialists. However, anyone who wants to learn how to systematically identify and address the underlying causes of problems can benefit from an RCA course. This may include managers, supervisors, and team leaders who want to improve their problem-solving skills and create a culture of continuous improvement in their organisations.

Pre-requisites

There are nil pre-requisites for this course.

Course Topics

- Introduction to Apollo Root Cause Analysis
- Define the Problem
- The Cause and Effect Principles
- The RC Pro®/RealityCharting® Process
- Identify Effective Solutions
- Implement and Track Solutions
- Group Facilitation
- Putting it all together

In additional, Holistic Asset Management is pleased to offer an additional day dedicated to practical hands on learning of specific customer related examples or current problems faced by the customer.

Classroom Course **2 OR 3 Days**

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Learning Objectives

- ✓ Understand the steps of effective problem solving
- ✓ Understand how to clearly define a problem
- ✓ Understand the four principles of cause and effect
- ✓ Understand the difference between a 'Cause and Effect Chart' and a sequence of events
- ✓ Know how to create a RC Pro®/RealityCharting®
- ✓ Know how to identify the most effective and creative solutions
- ✓ Understand the key elements of an event report
- ✓ Learn how to facilitate an incident investigation
- ✓ Facilitate an incident investigation
- ✓ Learn how to create an effective problem solving culture
- ✓ Apply the methodology and problem solve practical examples
- ✓ Understand the importance of continuous improvement

APOLLO Root Cause Analysis™ POWERED BY RealityCharting®

Holistic Asset MANAGEMENT

WEIBULL ANALYSIS COURSE

The Weibull distribution is commonly used in reliability and survival analysis to model the failure time of a system or product. This course will consist of theory based workshops, interactive sessions, software demonstrations and case studies relevant to their industry. Participants will learn the fundamentals of probability and statistics, and gain a thorough understanding of the Weibull distribution and its properties. The course will cover different methods for estimating Weibull parameters and techniques for model selection and goodness of fit tests.

Participants will also learn how to handle incomplete data with censoring, a common problem in reliability data analysis. The course will cover accelerated life testing, reliability growth analysis and repairable system analysis, which are key techniques for predicting the reliability of products and systems over time.

Software demonstration will be undertaken in Reliasoft Weibull++, which is a comprehensive life data analysis tool that performs life data analysis utilizing multiple lifetime distributions, warranty and degradation data analysis, design of experiment and more with a clear and intuitive interface geared toward reliability engineering.

The goal is to provide the participants with a solid understanding of Weibull Analysis and its applications, and equip them with the skills to apply the techniques in their own work.

Who Should attend?

The Weibull Analysis Course is designed for professionals working in fields where reliability and survival analysis are important, such as engineering, quality control, product development, and maintenance.

This course is suitable for individuals who are new to Weibull analysis or who have some experience but want to enhance their knowledge and skills. Participants should have a basic understanding of probability and statistics

Pre-requisites

The Weibull Analysis Course requires participants to have a basic understanding of probability theory and statistics.

Course Topics

- Introduction to Weibull Analysis
- Basic Probability and Statistics Concepts
- Weibull Distribution and its Properties
- Estimating Weibull Parameters
- Goodness of Fit tests and Model Selections
- Data Censoring and Handling Incomplete Data
- Reliability Growth and Accelerated Life Testing
- Repairable Systems

Classroom Course **2 Days**

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Learning Objectives

- ✓ Understand the properties of the Weibull distribution, such as the scale and shape parameters
- ✓ Learn how to estimate the scale and shape parameters of the Weibull distribution from data
- ✓ Understand the importance of model selection in Weibull analysis
- ✓ Learn how to use goodness of fit tests to compare Weibull models
- ✓ Understand the concept of censored data and its impact on Weibull analysis
- ✓ Learn how to handle incomplete data using methods such as maximum likelihood estimation and regression analysis
- ✓ Understand the concept of reliability growth and its relationship with Weibull analysis
- ✓ Learn how to use accelerated life testing to estimate Weibull parameters
- ✓ Understand the concept of repairable systems and how they differ from non-repairable systems
- ✓ Learn how to use Weibull analysis to model and analyze repairable systems

ReliaSoft Weibull++

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RBD MODELLING COURSE

A reliability block diagram (RBD) is a graphical representation of how the components of a system are reliability-wise connected. Building RBDs involves adding blocks to a diagram and then arranging and connecting the blocks so that they represent the reliability-wise configuration of a system or process. Each block represents a component of the overall system or process that is represented by the RBD. You can define individual blocks with the reliability and other characteristics of the components they represent, and also customise the appearance of each block to enhance the presentation of your diagrams.

Reliability Block Diagrams and modeling are closely related and are often used together to optimize system reliability. Models can be used to simulate the behavior of a system based on RBDs, and RBDs can be used to identify the critical components that need to be included in the models. Together, RBDs and modeling can provide engineers with a powerful toolset to analyze the reliability of complex systems and develop effective maintenance strategies.

In this course, we provide participants with a comprehensive overview of Reliability Block Diagrams and modeling. Participants will learn how to develop RBDs, model complex systems, and use modeling techniques to analyze system reliability. The course also includes practical exercises and case studies to help participants apply the concepts they learn in real-world situations. By the end of the course, participants will be equipped with the knowledge and skills needed to optimize system reliability and reduce downtime in their organizations.

Software demonstrations will be undertaken in ReliaSoft BlockSim which provides a comprehensive platform for system reliability, availability, maintainability.

Who Should attend?

This course is beneficial for individuals who are involved in the design and analysis of complex systems, such as systems engineers, design engineers, and reliability engineers. The course is also valuable for maintenance professionals and managers who are responsible for ensuring the reliability and safety of their organization's assets.

Pre-requisites

It is recommended to complete the Weibull Analysis course, as Failure models developed in Weibull++ are applied to BlockSim Modelling.

Course Topics

- Introduction to Reliability Block Modelling
- Systems and Components
- Basic Reliability Models
- Complex Reliability Models
- Reliability Block Modelling Analysis Techniques
- Build Basic Reliability Models in BlockSim
- Build Complex Reliability Models in BlockSim
- Apply Failure Models and Maintenance Strategies in BlockSim
- Simulating Models in BlockSim
- Interpeting & Analysing BlockSim Simulation Results

Classroom Course **2 Days**

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Learning Objectives

- ✓ Define reliability block modeling and explain its importance in system reliability analysis.
- ✓ Understand the basic principles of probability and statistics as they relate to reliability block modeling
- ✓ Understand the relationships between components in a system
- ✓ Understand the series system model, the parallel system model, the standby system model and the k-out-of-n system model
- ✓ Learn how to combine basic models to create complex models
- ✓ Understand how to use software for RBM analysis
- ✓ Understand the sensitivity analysis process
- ✓ Understand the Monte Carlo simulation technique
- ✓ Understand the importance of documentation and reporting in RBM analysis and how to effectively communicate results

ReliaSoft BlockSim

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FMEA USING RELIASOFT XFMEA

ReliaSoft XFMEA software allows you to perform any type of FMEA analysis, including Design FMEA, System FMEA, Process FMEA and FMECA. With extensive reporting capabilities, risk discovery tool and flexibility to accommodate all FMEA techniques, you can facilitate any FMEA team workshops/meetings.

The software enables you to build a continuous knowledge repository of the FMEA results to be reused throughout the reliability program. It also supports related analyses such as P-Diagrams, DVP&Rs (Test Plans), Design Reviews Based on Failure Mode (DRBFMs), Process Flow Diagrams and Process Control Plans. Benefits of ReliaSoft XFMEA software includes:

- Establish consistency throughout your organisation's FMEA process. Enable cooperation across multiple users to quickly analyse current designs and processes to improve efficiency and reduce costs.
- Proactively consider potential failures, prioritize issues based on risk, and then initiate improvements early in development when modifications tend to have the greatest impact for the lowest cost.
- Save time and promote consistency within your organization by reusing information and libraries from existing FMEAs. Easily trace and search your reliability knowledge base.
- Increase customer satisfaction by performing any FMEA and FMECA to achieve higher reliability and safety. Highlight high risk items using Criticality Analysis or Risk Priority Number (RPN).
- Bolster your quality, risk and reliability programs by supporting industry standards for all types of FMEA analysis.
- Effectively support decision-making and make sure that corrective actions are implemented by utilizing charts, reports, automated e-mails, and other features to optimally use your analysis information.

Pre-requisites

It is highly recommended to complete the FMEA / FMECA Foundations course prior to undertaking this course.

Who Should attend?

This course is beneficial for individuals who are involved in undertaking FMEA and have purchased the Reliasoft XFMEA Module.

Course Topics

- Overview of ReliaSoft XFMEA software
- User interface and navigation
- Create the project and set project properties
- Add items to the system hierarchy
- Add a new FMEA
- Add records in the FMEA Hierarchy
- View RPNs and related Metrics
- Create Plots
- Run query
- View a dashboard
- Generate a report
- Importing data

Classroom Course | **1 Day**

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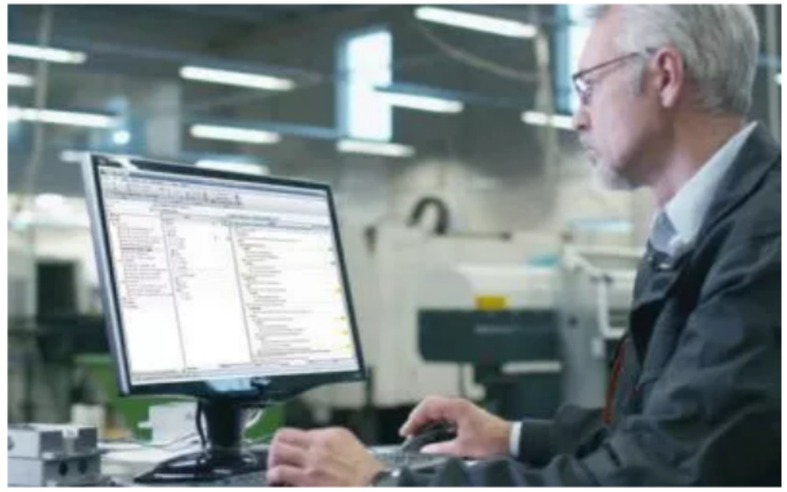
Learning Objectives

- ✓ Learn how to navigate XFMEA
- ✓ Creating new projects and importing in existing FMEA
- ✓ Build system hierarchy in XFMEA
- ✓ Build a FMEA in XFMEA
- ✓ Understand how to calculate RPNs in XFMEA
- ✓ Learn how to create plots
- ✓ Learn how to generate FMEA reports



ReliaSoft XFMEA

Holistic Asset MANAGEMENT

FMEA USING RELIASOFT RCM++

ReliaSoft RCM++ software facilitates the reliability centered maintenance (RCM) analysis approach to improve reliability of the assets and optimize maintenance planning. The software supports all the major RCM industry standards, such as ATA MSG-3, SAE JA1011 and SAE JA1012 and provides full-featured capabilities for FMEAs and related analyses. Benefits of ReliaSoft RCM++ software include:

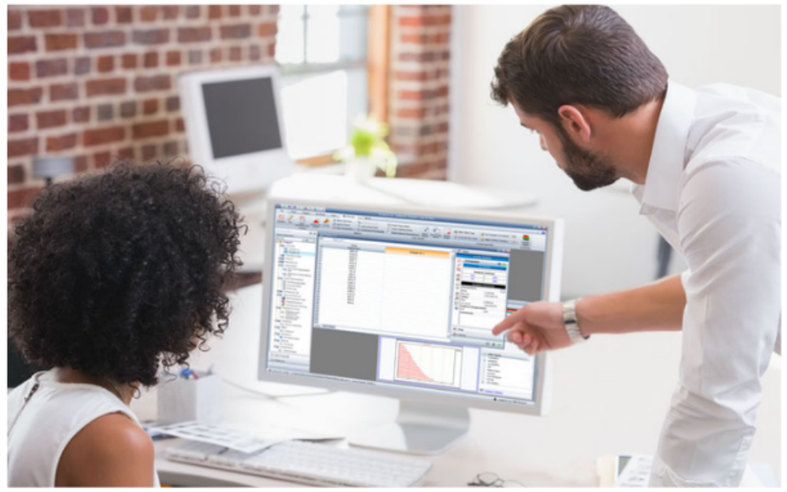
- Save time and money by designing processes based on criticality and consequences. Easily create maintenance tasks by configuring equipment and categorizing failure effects.
- Learn from past analyses to drive more efficient and more effective analyses.
- Determine the optimal preventive maintenance (PM) program to proactively deter equipment failures.
- Perform FMEA and related analyses within your RCM analyses or independently.
- Compare the costs of potential maintenance strategies and estimate the optimum maintenance interval for preventive repairs/replacements with simulation-based calculations.
- Easily configure your analysis workspace with predefined profiles to fit the major RCM and FMEA reporting standards.

Pre-requisites

It is highly recommended to complete the RCM Foundations course prior to undertaking this course.

Who Should attend?

This course is beneficial for individuals who are involved in undertaking RCM and have purchased the Reliasoft RCM++ Module.



Course Topics

- Overview of ReliaSoft RCM++ software
- User interface and navigation
- Create the project and set project properties
- Add items to the system hierarchy
- Add a new FMEA
- Add records in the FMEA Hierarchy
- Failure Effect Categorisations
- Task Selection
- Task Types in RCM++
- Optimum replacement
- Task Packaging

Classroom Course | **1 Day**

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Learning Objectives

- ✓ Learn how to navigate RCM++
- ✓ Creating new projects and importing in existing FMEA/RCM
- ✓ Build system hierarchy in RCM++
- ✓ Build a FMEA in RCM++
- ✓ Understand how to categorise effects in RCM++
- ✓ Understand the different task types in RCM++
- ✓ Learn how to use the Task Manager to select and assign recommended maintenance tasks.
- ✓ Learn how to select tasks using maintenance task logic and using simulation and cost calculations
- ✓ Learn how to determine the best time to replace components based on the costs for planned and unplanned maintenance
- ✓ Learn how to use schedule task packaging to group tasks for the most efficient allocation of resources

ReliaSoft RCM++

Holistic Asset MANAGEMENT

Why choose Holistic Asset Management?

Our Asset Management and Reliability Specialists offer a powerful combination of industry expertise, subject matter mastery and dedication to delivering excellence for our clients, stakeholders and each other.

Our team has combined expertise in almost all areas of reliability engineering, asset management, and maintenance management with hands on experience that spans a broad spectrum of mining mobile equipment.

We are structured to accommodate all requests of any size or complexity, from short telephone consultations to long term engagement of SME resources, to ensure our clients obtain the required value from their assets.

We are proud of the reputation we have earned as a reliable and advanced engineering services provider to the mining industry. Our commitment to our customers is to provide the most reliable and advanced engineering solutions that will help them improve their reliability management systems and ultimately reduce their operational costs.

Unlock the full potential of your assets with our services. Contact us today to schedule a consultation and discover the difference we can make.

> “RECOGNISE, BELIEVE, AND SEE THE REAL VALUE OF MANAGING ASSETS”

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