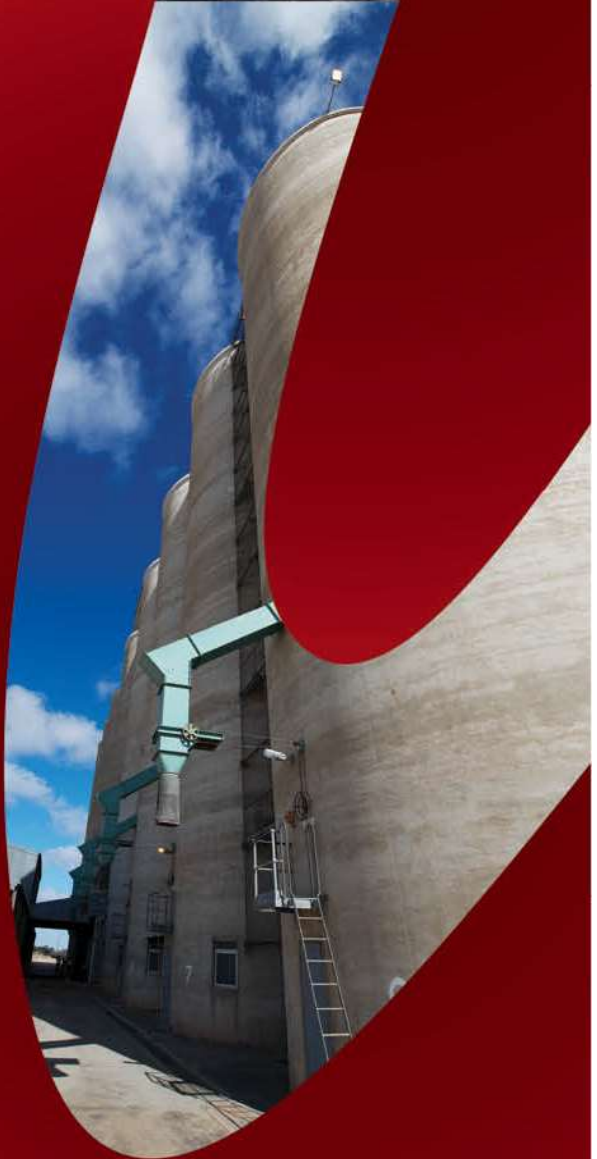




assetivity



Training Services

Capability Statement

Version 1.2

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1 Our Training Services

Assetivity offers a wide range of training services aimed at identifying and developing appropriate competencies in maintenance and asset management from the shop floor to the boardroom. The core of our capability consists of the following suite of courseware, available for delivering at a location and time convenient to you. We also offer selected courses publicly – contact us for details of courses, dates and locations.

1.1 Asset Management Training Courses

1.1.1 IAM Endorsed Courses

The following courses are endorsed by the United Kingdom's Institute of Asset Management (IAM) and are aligned with the requirements of ISO 55001 and the Asset Management Landscape.

Title	Duration
IAM Foundation Award	1 Day
IAM Executive Briefing	½ Day
B1 – The Asset Management System	1 Day
B2 – Defining Asset Management Policy & Strategy	1 Day
B3 – Effective Asset Management Strategies and Plans	1 Day
B4 – Building an Asset Management Organisation	1½ Day
B5 – Implementing Asset Management Plans	1 Day
B6 – Assessing Asset Management Risk and Performance	1 Day

1.1.2 Supplementary Asset Management Courses

In addition to our IAM-endorsed courses, we also offer the following course specifically to explore the ISO 55000 series of standards and their practical application.

Title	Duration
Introduction to ISO 55000	1 Day
Implementing an ISO 55000 Compliant Asset Management System	2 Days
Asset Management Master Class	5 Days

1.1.3 Best Practice Maintenance & Reliability Courses

These courses are built around recognised best practice sources, such as Moubray's *RCM II*, enhanced with examples and practical advice from Assetivity's extensive experience with maintenance management and reliability engineering across a wide range of industries.

1.1.4 Maintenance Management Courses

Title	Duration
Introduction to Maintenance Management	1 Day
Maintenance Planning & Scheduling Excellence	2 Days
Effective Shutdown Planning & Management	1 Day
Spare Parts Optimisation	1 Day

1.1.5 Reliability Engineering Courses

Title	Duration
Introduction to Reliability Improvement	1 Day
Reliability Centred Maintenance & PM Optimisation for Team Members	2 Days
Reliability Centred Maintenance & PM Optimisation Facilitation	3 Day
Defect Elimination	1 Day
Root Cause Analysis for Team Members	2 Days
Root Cause Analysis for Facilitators	3 Days

1.2 Value Adding Services

While our courseware is second to none, it cannot add value to an organisation if it does not address an existing competency gap – i.e. it teaches something that the workforce already knows or does not need to know. Equally, training is most likely to result in achievement of the required competencies and subsequent application in the workplace when the delivery style and content is matched to the characteristics of the workforce. Consequently, we offer the following services to enhance the value of our training:

- **Training Needs Analysis.** We will examine your existing workforce and provide advice on where the competency gaps are and, given the characteristics of the workforce, what sort of training or coaching would be necessary to fill these gaps in the most time and cost effective manner.
- **Role Definition.** We will assist you to define and document a workforce structure and specific roles that will allow you to deliver your maintenance and asset management objectives. In doing so, we will take care to match our recommendations to your existing structure and industry practices.

- **Tailoring.** We will adapt our existing material or develop new material to optimise our training package for your organisation. This includes the use of industry (or organisation) specific terminology, processes, examples, exercises and case studies.
- **Coaching.** In many cases, building competence requires us to stay engaged beyond the classroom, providing coaching to individuals and groups in the workplace.
- **Performance Measurement.** A key to success in any improvement effort is establishment of measures that will tell you when you have achieved the desired outcome. This can be particularly challenging with training, where the desired changes are often cultural or behavioural and therefore intrinsically difficult to measure. We can assist you with developing appropriate tools, providing the assurance that the required competencies have actually been implemented in the workplace.



2 Asset Management Training

Asset Management is not so much a new discipline as a new amalgamation of existing ones, including operations, maintenance, finance, supply and projects. It requires a multidisciplinary approach that takes an organisation's thinking about its physical assets to a new level, focussed not on the objectives of the individual disciplines but on optimising the selection, procurement, use, maintenance and disposal of the assets for delivery of the business objectives in a sustainable manner. This offers significant opportunity for reductions in risk and cost while simultaneously improving performance, but it requires a step change in the organisation's culture and the way it thinks about its assets.

2.1 IAM Endorsed Courses

2.1.1 The IAM Endorsed Trainer Scheme

In its role as a peak professional body, the United Kingdom's Institute of Asset Management (the IAM) has established a comprehensive framework to support organisations seeking to achieve best practice in Asset Management. This framework features:

- **Clear Alignment** – Alignment with accepted best practice, including both:
 - The ISO 55000 suite of standards for a management system for Asset Management
 - The Asset Management Landscape – the Global Forum on Maintenance and Asset Management's consensus on the scope and content of the discipline
- **Distinct Competencies** – A clear set of competencies for each of 7 key asset management roles, covering engineering, financial management, operations, people development and more
- **Defined Training** – Learning objectives and content guidance for a suite of courses that map to the identified roles and competencies
- **Quality Assurance** – An Endorsed Trainer Scheme (ETS) that clearly identifies training organisations that have demonstrated capacity to deliver high quality training in the identified competencies.

As a member of the ETS, Assetivity is one of the organisations *worldwide* that the IAM has endorsed to deliver Asset Management training courses. Engaging Assetivity as your Asset Management trainer ensures that:



- You will receive high quality training, endorsed by the IAM
- The training content is aligned with the requirements of ISO 55000 and the Asset Management Landscape
- Participants who successfully complete the IAM registered online assessments will be clearly recognised through registration with the IAM and issue of an appropriate certificate

2.1.2 The IAM Competences Framework

The key roles in the IAM Competences Framework are tabulated on the right. Each Role is broken down into a small number of competence Units, such as “Develop the AM policy”. There are 27 Units in total and each of these is subdivided into a small set of Elements of competence such as “Assess Policy options using appropriate decision criteria” and “Investigate root causes of asset or system failures or incidents”. Within the training courses, individuals are assessed against these Elements.

Key Roles

- 1 Policy Development
- 2 Strategy Development
- 3 Asset Management Planning
- 4 Implement Asset Management Plans
- 5 Asset Management Capability Development
- 6 Risk Management and Performance Improvement
- 7 Asset Knowledge Management

The eight IAM endorsed training courses map to the key roles as shown in the table below.

Title	Duration	Relevance to CF Roles						
		1	2	3	4	5	6	7
Asset Management Principles and Policy								
IAM Foundation Award	1 Day	✓	✓	✓	✓	✓	✓	✓
IAM Executive Briefing	½ Day	✓	✓	✓	✓	✓	✓	✓
Implementing Asset Management Systems								
B1 The Asset Management System	1 Day			✓	✓	✓	✓	
B2 Defining Asset Management Policy & Strategy	1 Day	✓	✓					
B3 Effective Asset Management Strategies and Plans	1 Day		✓	✓				
B4 Building an Asset Management Organisation	1½ Day					✓		
B5 Implementing Asset Management Plans	1 Day				✓		✓	
B6 Assessing Asset Management Risk and Performance	1 Day						✓	✓

Assetivity is proud to offer these courses publicly; and for in-house delivery on request. We maintain generic packages for each course that can be quickly tailored to your organisation through incorporation of your terminology and processes and relevant exercises, examples and case studies.

2.1.3 IAM Foundation Award Course

1 Day – A foundation course for new entrants to asset management teams

About this Course

This interactive course introduces the key concepts and principles underpinning world class asset management. Building on the content of the ISO 55000 Standard for Asset Management, this course is endorsed by the Institute of Asset Management.

Assetivity offers this training course as an introduction to Asset Management (AM) for new members of the Asset Management Team. We will provide participants with an overview of the key principles of effective Asset Management and the benefits to be obtained from taking a systematic approach to Asset Management.

Participants will gain an understanding of:

- Asset Management Terminology and what is included in an Asset Management System.
- The Benefits of Asset Management
- What good practice Asset Management looks like?
- Implementation of the AM Plan including considerations for operations, maintenance, managing plant (renew or dispose) and optimise assets.
- The role of Risk Management in effective Asset Management.

Who Should Attend

This course is intended for new and prospective asset management team members or those requiring a refresher course on the fundamentals. Typical attendees include:

- Maintenance Supervisors, Superintendents and Managers
- Supply Superintendents and Managers
- Engineers and Project Managers

Learning Objectives

By the end of this course, delegates should (as a minimum) be able to:

- Describe basic asset management concepts, principles and terminology
- Give examples of the breadth of asset management activities
- Describe characteristics of good practice asset management
- Give examples of some commonly used techniques
- Explain the types of benefits organisations can realise.

Assessment

This course includes the ability to register for an IAM online multiple-choice knowledge test to check knowledge and understanding of the concepts covered. Participants who meet the pass mark will be able to download an IAM Foundation Award certificate as evidence of successful completion of the course.

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course
- Gain an understanding of what is expected through the course

Asset Management Concepts

- What is Asset Management?
- What is an Asset?
- Principles and Attributes of “Good” AM
- What is an Asset Management System?
- The ISO 55000 Asset Management Model

The Benefits of Asset Management

- Traditional v ISO 55000 AM
- The Impact of AM on a Business
- Summary of AM Benefits
- Case Studies – Benefits of AM

Asset Management Landscape

- Asset Management Model
- Policies, Strategies and Plans
- Decision Making
- Organisation and People
- Lifecycle Delivery
- Asset Information
- Risk and Review

Good practice Asset Management

- Stakeholder engagement
- Asset Management Planning Cycle
- The Performance/Cost/Risk Trade-off
- Life Cycle Costing as a Decision Tool
- Risk as a Decision Tool
- Performance Measures as Decision Tools – KPIs
- Case Study – AM Decision Making

Asset Management Journey

- Implementing Improved Processes
- Developing the AM System
- Developing AM Competency
- IAM Resources
- Case Study – The improvement Journey

Course Summary

Assessment

2.1.4 IAM Executive Briefing Course

Half Day – A review of key asset management policy challenges and approaches for senior managers

About this Course

Assetivity offers training course as an introduction to Asset Management (AM) for Executives, Directors and Senior Managers. We will provide participants with an overview of the key principles of effective Asset Management and the benefits to be obtained from taking a systematic approach to Asset Management.

Who Should Attend?

This course is intended for senior managers who have responsibility for the development and management of asset management policy. Typical attendees include:

- Senior Executives
- Asset Management Leaders

Learning Objectives

By the end of this course, delegates should (as a minimum) be able to:

- Describe basic asset management concepts, principles and terminology
- Give examples of the breadth of asset management activities
- Describe the drivers for organisations to adopt and implement Asset Management
- Explain the types of benefits organisation can realise
- Describe characteristics of good practice asset management
- Give examples of some commonly used techniques
- Outline the implications for organisations and people on AM journey

Course Content

Asset Management Concepts and Definitions

- What is an asset?
- What is asset management?
- Fundamentals of asset management
- Scope of asset management
- What is an asset management system?

The Benefits of Asset Management

- How does asset management impact on your business?
- Business case for asset management

Scope of Good Practice Asset Management

- The asset management landscape
- Strategy and Planning
- Decision Making
 - Organisation and People
 - Lifecycle Delivery
 - Risk & Review
 - AM Spans all phases of the Asset Lifecycle

ISO 55000

- Overview of ISO 55000
- Implications for Top Management

2.1.5 B1: The Asset Management System Course

1 Day – A detailed work-through of the main components of an asset management system

About this Course

Assetivity offers this training course as a detailed work-through the main components of an Asset Management (AM) system, for people who are leading or members of an Asset Management Team.

Participants will gain a detailed insight into:

- Managing the whole asset lifecycle, covering operation, maintenance, optimisation and rationalisation of assets.
- Compiling an Asset Management system including establishment, documentation, implementation and maintenance of the system.
- ISO 55001:2014 compliance requirements, asset scope and integration with other business systems and processes.
- Reviewing and improving Asset Management performance.

Participants will be involved in class and group discussions facilitated by our course trainer.

Who Should Attend

This course is intended for personnel responsible for the development, implementation and operation of the asset management system. Typical attendees include:

- Maintenance Supervisors, Superintendents and Managers
- Supply Superintendents and Managers
- Engineers
- Project Managers
- Finance and Business Managers

Learning Objectives

By the end of this course, delegates should (as a minimum) be able to:

- Describe the main stages in the asset management lifecycle
- Describe the main components of an asset management system
- Describe the main requirements of ISO 55001:2014
- Give examples of how asset management performance can be assessed and what information is required to do this

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course
- Gain an understanding of what is expected through the course

What is the Asset Management System?

- What is Asset Management?
- What is an Asset Management System (AMS)?
- How is an AMS developed?
- The ISO 55000 AMS

Context of the Organisation

- Understanding organisational context and the needs/expectations of stakeholders
- Determining the scope of the AMS
- The AMS

Leadership

- Leadership and commitment
- The Asset Management Policy
- Organisational structure

Asset Management Planning

- Addressing risks and opportunities

- Defining Asset Management Objectives
- Planning to achieve Asset Management Objectives

Support

- Resources
- Competence
- Awareness
- Communication
- Information requirements
- Documented information

Operation of the AMS

- Operational planning and control
- Management of change
- Outsourcing

Performance Evaluation

- Performance and condition monitoring
- Audit
- Management review

Improvement

- Nonconformity and corrective action
- Preventive action
- Continuous improvement

Course Summary

Assessment

2.1.6 B2: Defining Asset Management Policy & Strategy Course

1 Day – A detailed review of asset management policy and strategy identification, development and evaluation for asset management leaders

About this Course

Assetivity offers this training course as a detailed review of asset management policy and strategy identification, development and evaluation. It is aimed at current and future Asset Management Leaders within an organisation. Participants will gain an insight into:

- Analysing AM policy requirements
- Developing an AM policy
- Ensuring that AM activities are aligned with and achieve the organisational strategic plan
- Analysing strategic requirements
- Forecasting and analysing future user requirements and demands
- Developing the AM strategy
- Planning the implementation of the AM strategy

Who Should Attend

This course is intended for senior managers who have responsibility for setting strategic direction through development and management of the asset management policy and strategy. Typical attendees include:

- Senior Executives
- Asset Management Leaders

Learning Objectives

By the end of this course, delegates should (as a minimum) be able to:

- Explain the differences between asset management strategy and policy and why both are important
- Describe the main components and sources of information of an asset management policy and strategy
- Give examples of regulations and stakeholder interests likely to affect decisions to decommission or dispose of assets
- Give examples of how future user requirements and demands can be forecast
- Describe the main components and sources of information of an asset management strategy
- Give examples of what needs to be done to plan the implementation of an asset management strategy
- Give examples of how the adoption of asset management is likely to affect relationships inside an organisation and with its suppliers
- Give examples of how the effectiveness of an asset management strategy can be measured and monitored

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course
- Gain an understanding of what is expected through the course

AM Policy Development

- What is AM and what is AM's equipment and life cycle scope?
- What is policy and strategy?
- Key characteristics of a good AM policy
- Other policies and strategies relevant to AM
- Associated Legislative and regulatory requirements
- Outline how to develop AM policies including considerations, benefits and impacts on other parts of the business
- Outline and describe an organisation's AM policy
- Relevant changes in the business environment and the impact on stakeholder expectations
- Stakeholder management and consultation process
- Activity – Develop or refine an Asset Management Policy for a case study example

AM Policy Management

- AM policy management requirements – who, how, what and when
- Key policy life cycle risks
- Typical AM Policy change drivers
- The need to plan for change
- Assessment of proposed policy and changes to policy

- Activity – Discuss a plan for change and how it impacts AM policy management

AM Strategy Development

- Key characteristics of a good AM strategy
- Outline and describe a Strategic AM Plan
- How AM Strategy evolves from a policy to support business goals
- The necessary relationships between the business and AM plans and strategy
- Business process models and appropriate metrics
- Market analysis, work capital and cash flow forecasting
- Asset condition assessment and degradation modelling
- Budget, costs forecast and management
- Stakeholder – expectations
- The impact of changing economic conditions and stakeholder expectations
- Environmental management standards
- Sustainability principles
- Implications of severe weather and climate change
- Activity – Develop or refine an AM strategy for a case study example

AM Strategy Management

- AM strategy management requirements – who, how, what and when
- Key strategy life cycle risks
- AM strategy measurement – what, how, when
- The need to plan for change and typical AM strategy change drivers
- Assessment of proposed strategies and changes to strategy

- Activity – Discuss a plan for change and how it impacts AM strategy management

Course Summary

Assessment



2.1.7 B3: Effective Asset Management Strategies & Plans Course

1 Day – Essential training for people new to asset manager roles on how to develop effective asset management plans

About this Course

Assetivity offers this training course as new Asset Managers.

Participants will gain a detailed insight into:

- Analysing strategic requirements and developing the AM strategy
- Forecasting and analysing future user requirements and demands
- Planning the implementation of the AM strategy
- Appraising investment options and applying whole life costing principles
- Creating and acquiring assets
- Planning for contingencies
- Developing and communicating AM plans

Who Should Attend

This course is intended for personnel responsible for developing the details of asset management strategy and plans. Typical attendees include:

- Maintenance Supervisors, Superintendents and Managers
- Supply Superintendents and Managers
- Engineers
- Project Managers
- Finance and Business Managers

Learning Objectives

By the end of this course, delegates should (as a minimum) be able to:

- Understand the relationships and differences between asset management strategies and plans
- Describe the main components and information sources of an asset management strategy and an asset management plan
- Give examples of how internal and external stakeholder interests and opinions can affect asset management planning
- Describe the main principles of asset whole life costing
- Describe how sustainability principles can be applied to asset management planning
- Give examples of how asset management benefits can be tracked
- Give examples of performance indicators that can be used in whole life assessment of asset creation or acquisition options
- Describe the main components of a business case to support a preferred investment option
- Give examples of costs for all key stages of the asset management lifecycle

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course
- Gain an understanding of what is expected through the course

The Asset Management Planning Cycle

- The planning cycle
- The roles of strategies and plans

Asset Management Strategy

- Typical contents
 - Inputs to the strategy
 - Stakeholder needs/expectations
 - Asset portfolio performance and condition
 - Business objectives
 - Policy requirements
 - Establishing Asset Management Objectives
 - Planning to deliver the Asset Management Objectives
 - Strategic initiatives
 - Performance measures
- Activity: Formulate an AM Strategy for a case study example

Asset Management Plans

- Scope & structure
- Typical contents
- Inputs to the plan
 - Stakeholder needs/expectations
 - Asset performance & condition
 - Asset Management Objectives/ Levels of Service
 - Technology developments
- Activity: Carry out a whole life costing exercise on a piece of equipment
- Establishing asset actions
 - Identifying options
 - Evaluating options
 - Defining performance measures
- Activity: Develop an Asset Management Plan for a case study example

Integrating and Implementing Plans

- Optimisation and prioritisation of AM plans
- Preparing business cases and budgets

Course Summary

Assessment

2.1.8 B4: Building an Asset Management Organisation Course

1½ Days – A detailed review of the organisational, knowledge management and risk management implications of effective asset management for executives and asset management leaders

About this Course

Assetivity offers this training course as a detailed review of the organisational, knowledge management, risk management implications of effective asset management for Executives and AM leaders. This training is to assist executives and AM leaders define, build and maintain an effective AM environment within their organisation.

Participants will gain an understanding of how AM integrates into an organisation and some of the key cultural, structural and procedural interface issues associated with AM.

Who Should Attend

This course is intended for senior personnel with responsibility for building the asset management workforce and culture within an organisation. Typical attendees include:

- Senior executives
- Asset Management Leaders
- Human Resources Specialists

Learning Objectives

By the end of this course, delegates should (as a minimum) be able to:

- Describe the main implications of asset management for organisational structure, roles and responsibilities and reporting lines
- Give examples of career paths in asset management
- Describe how the performance of people working in asset management can be assessed and improved
- Describe how the criticality of products, services and their suppliers can be analysed
- Give examples of how asset management affects the specification of requirements for supplied goods and services
- Describe how organisational culture is likely to affect asset management performance
- Describe how to analyse the criticality of procured products and services
- Give examples of criteria which can be used to assess the performance of asset management teams

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course

- Gain an understanding of what is expected through the course

Asset Management Organisations (AMOs) within a larger body

- Defining requirements for an AMO within a larger body – dedicated

company division or holistic company wide solution?

- Organisational structure
- Organisational responsibilities
- Common organisational interfaces
- The concept of culture as applied to organisations.
- The principles and methods of managing culture change within organisations
- Values, assumptions and behaviours that are consistent and inconsistent with your vision and strategy
- Case study: Analysis of 2 different AMOs in different fields.

People

- The information required to undertake workforce planning
- Expected workloads and types
- Resource scheduling tools and techniques
- Training needs analysis
- Recommended qualifications, training and experience levels required
- Potential career management/personal development paths
- Performance monitoring
- Continuing professional development.

Processes

- Organisational procedures and systems
- Project management principles and the importance of operating to cost, time and quality obligations
- Systems Engineering as applied to Asset Management
- “Whole of life” Asset configuration control of requirements, physical, functional, data
- Life Cycle Costing and Financial evaluation methods.
- Managing change methods.

- How to manage customer, staff, supplier and other stakeholder expectations during change
- Risk management within the AMO
- Activity: Complete a draft outline of the people (roles) and processes needed within your AM organisation.

Data

- AMO data needs
- Records and record keeping

Facilities, Tools and Equipment

- Computer systems
- Group Discussion: What Computerised AM Management systems are currently in use at participant’s organisations? What are their capabilities? What capability gaps currently exist?

Quality assurance and improvement

- Continuous improvement principles and processes
- Alignment with ISO and other quality standards

Inputs, Outputs and Interfaces

- Service Level Agreements
- Contracts and Contractual management – supply of goods and services
- “Whole of life” Requirements specification for Asset and associated asset support acquisition
- Asset criticality analysis
- Asset Management Planning (overview)
- Exercise: Develop a simple requirements specification for an Asset and its associated support

Course Summary

Assessment

2.1.9 B5: Implementing Asset Management Plans Course

1 Day – A review of good practice approaches, tools and techniques for life cycle analysis and whole life costing, determining costs and budgets, allocating resources and managing work activities across the asset life cycle for asset management leaders and team members

About this Course

Assetivity offers this training course for people who are leading or are members of an Asset Management Team.

Participants will gain a detailed insight into:

- Maintaining assets
- Optimising and rationalising assets
- Renewing or disposing of assets
- Monitoring and reviewing AM progress and performance
- Reviewing and auditing compliance with legal, regulatory, ethical and social requirements
- Assessing and managing risks
- Learning from incidents

Who Should Attend

This course is intended for the personnel who execute asset management plans and monitor performance. Typical attendees include:

- Maintenance Supervisors, Superintendents and Managers
- Supply Superintendents and Managers
- Engineers
- Project Managers
- Finance and Business Managers

Learning Objectives

By the end of this course, delegates should (as a minimum) be able to:

- Describe the main implications of asset management for asset maintenance, renewal and disposal
- Give examples of how asset condition and performance can be assessed
- Give examples of options for extending the life of assets
- Give examples of how the effectiveness of life-extending, decommissioning, disposal or risk control actions can be evaluated
- Describe the main components of a risk based maintenance or refurbishment work plan
- Describe the main types of asset related risk and how these can be mitigated

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course

- Gain an understanding of what is expected through the course

What is Implementation?

- Implementation is...

Executing Life Cycle Activities

- Technical standards and legislation
- Asset creation and acquisition
- Systems engineering
- Configuration management
- Reliability engineering
- Maintenance delivery
- Asset operations
- Resource management
- Shutdown/outage management
- Incident response
- Asset rationalisation and disposal
- Common applications
- Case Study: Gas turbine overhaul arrangements

Measuring Asset Management Performance

- Sources of risk
- Risk controls
- Levels of assessment and measurement
- Evaluating Asset Management System effectiveness
- Assessing asset condition and performance
- Key Performance Indicators
- Activity: Risk identification
- Activity: Key Performance Indicators
- Case Study: Repair v Replace policy and procedures

Managing Exceptions

- Investigating exceptions
- Responding to exceptions
- Case Study: Failing to manage the plan

Course Summary

Assessment



2.1.10 B6: Assessing Asset Management Risk and Performance Course

1 Day – A review of good practice approaches, tools and techniques for assessing asset management plans and investments for asset management leaders

About this Course

Assetivity offers this training course for Asset Management leaders.

Participants will gain an overview of:

- Assessing and managing risks
- Assuring the quality of AM processes
- Monitoring and reviewing progress and performance
- Reviewing and auditing for compliance with legal, regulatory, ethical and social requirements
- Learning from incidents
- Defining asset information requirements
- Specifying, selecting and integrating AM information systems
- Making appropriate AM information available for decision making

Participants will be involved in class and group discussions facilitated by our course trainer.

Who Should Attend

This course is intended for the person responsible for monitoring the overall success of the asset management system. Typical attendees include:

- Asset Management Leaders
- Performance Measurement Specialists

Learning Objectives

By the end of this course, delegates should (as a minimum) be able to:

- Describe what an asset management organisation needs to know in order to manage risk and improve performance.
- Describe the standards, processes and systems it will need to generate this knowledge
- Give examples of the main categories and types of risks affecting asset management strategy and plans
- Give examples of the legal, regulatory, ethical and social requirements likely to affect asset management planning and performance
- Describe the differences between systems audit and review and the role each can play in continuous improvement
- Describe the main components of a requirements specification for an asset information system

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course
- Gain an understanding of what is expected through the course

Risk Management and Performance Improvement

- Risk assessment processes.
- Types of risk and the factors which drive different types of risk.
- Key stages in the risk management process.
- Identification of risks
- Risk management processes appropriate to the assets being managed
- Impact of improvement actions on current operations and assessment of related risk.
- Probabilities and consequences and prioritisation of risks.
- Communicating information relating to risk
- How to establish effective systems for monitoring risk management processes
- Patents, copyright and intellectual property issues
- Social and ethical issues in AM
- *Activity: Outline some risks and assess how they will impact your AM Strategy*

Asset Knowledge Management

- Relevant industry standards and regulatory reporting requirements
- The attributes and limitations of Information Systems and Tools available to support AM processes e.g. asset registers, work and resource management, condition and performance monitoring and decision support tools
- Basic concepts and relationships of an asset register, including the part played by spatial, performance, condition and historical data
- How the Asset Management strategy has been used to determine what asset knowledge is needed and what the linkages are
- Documentation change management.
- Data collection and reporting tools and techniques; data analysis methods
- Information requirements - who needs what information, why, how and when?
- Training needs analysis
- Analysis and monitoring techniques.
- The integration of asset and technical information
- *Case Study: Key information requirements to understand that you are managing your risk within your AM Strategy*

Course Summary

Assessment

2.2 Supplementary Asset Management Courses

In recognition of the importance of the new ISO 55000 series of standards, we have prepared two specialist courses to aid all members of the asset management team to appreciate the new standard and determine the role it will play in their organisation. These courses are based on Assetivity's extensive experience in the field.

2.2.1 Introduction to ISO 55000

1 Day – A detailed exploration of the ISO 55000 series of standards for asset management practitioners

About this Course

Assetivity offers this training course as a detailed work-through of the main components of ISO 55001 for people who are leading development, implementation or maintenance of an organisation's asset management system.

Participants will gain a detailed insight into:

- The structure and intent of the ISO 55000 series of standards
- The four fundamentals underpinning asset management
- The key elements and recommended structure for an asset management system
- How to use the standards effectively
- Additional tools and techniques to support the standards

Participants will be involved in class and group discussions facilitated by our course trainer.

Who Should Attend

This course is intended for personnel responsible for the development, implementation and operation of the asset management system. Typical attendees include:

- Asset Management Specialists
- Managers from the Maintenance, Operations/Production, Supply, Project and Finance/Business Departments
- General Managers and other senior executives

Prerequisites

None.

Learning Objectives

By the end of this course, delegates should (as a minimum) be able to:

- Describe the structure and intent of the ISO 55000 series of standards
- Describe the fundamentals of asset management
- Describe the key elements of an ISO 55001 compliant asset management system
- Select an appropriate level of application of ISO 55001 for a specific organisation

- Provide examples of documents, tools and techniques required to implement an ISO 55001 compliant asset management system

Assessment

This course is not formally assessed, though participants undertake case studies and exercises to ensure their new knowledge transfers into practical skills and the confidence to apply them in the workplace. If desired, assessment can be added to in-house courses.

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course
- Gain an understanding of what is expected through the course

Overview of the Standards

- How did we get here? A short history of AM
- And where exactly are we? Structure and content of the standards
- Use and application (alignment, compliance or certification)

Principles and Terminology (ISO 55000)

- Definitions
- The Fundamentals of Asset Management

- Asset Management and the Asset Management System
- Key Elements of an Asset Management System

Requirements and Guidance (ISO 55002)

- The what and why for:
- Context of the organisation
- Leadership
- Support
- Operation
- Performance Evaluation
- Improvement
- Additional tools and references

Certification (ISO 55001)

- The certification standard
- The ISO certification process
- Transition from earlier standards

Course Summary

2.2.2 Implementing an ISO 55000 Compliant Asset Management System

2 Days – A comprehensive guide to compliance with ISO 55001 for asset management professionals

About this Course

This comprehensive two-day course provides a detailed work-through of the components of ISO 55001, provides guidance regarding how organisations can demonstrate compliance with each element, and discusses the practicalities of implementing robust Asset Management practices and processes within an organisation, in the context of ISO 55000. It is an information-packed, practical course for people who are leading and participating in the development, implementation or maintenance of an organisation's asset management system.

Led by one of Assetivity's [CAMA Certified Asset Management Assessors](#), participants will gain a detailed insight into:

- Key Asset Management principles
- The structure and intent of the ISO 55000 series of standards
- The four fundamentals underpinning asset management
- The key elements and recommended structure for an asset management system
- How to use the standards effectively
- Additional tools and resources available to assist with implementation
- Implementing improved Asset Management Practices and processes
- Gaining ISO 55000 certification

Participants will be involved in class and group discussions facilitated by our course trainer.

Who Should Attend

This course is intended for personnel responsible for the development, implementation and operation of the asset management system. Typical attendees include:

- Asset Management Specialists
- Managers from the Maintenance, Operations/Production, Supply, Project and Finance/Business Departments
- General Managers and other senior executives

Prerequisites

The course assumes that participants are familiar with the fundamental concepts of asset management, however a brief refresher on those concepts is undertaken in the first module of this course.

Learning Objectives

By the end of this course, delegates should (as a minimum) be able to:

- Describe the structure and intent of the ISO 55000 series of standards
- Describe the fundamentals of asset management
- Describe the key elements of an ISO 55001 compliant asset management system

- Understand how their organisation can demonstrate compliance with the requirements of ISO 55001
- Understand how best to implement improved Asset Management processes and systems within their organisation
- Understand the ISO 55001 certification process and how to seek certification

Assessment

This course is not formally assessed, though participants undertake case studies and exercises to ensure their new knowledge transfers into practical skills and the confidence to apply them in the workplace. If desired, assessment can be added to in-house courses.

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course
- Gain an understanding of what is expected through the course

- What are the key requirements, and how should they be interpreted?

- Organisational Context
- Leadership
- Planning
- Support
- Operation
- Performance Evaluation
- Improvement

Asset Management Concepts and Terminology

- What is Asset Management?
- What is an Asset?
- Key Elements of an Asset Management System
- Principles and Attributes of "Good" Asset Management
- Asset Management Decision Making concepts

- What is required to demonstrate alignment or compliance with each of these elements?

Implementing Improved Asset Management processes

- The Asset Management Journey
- The role and value of a Gap Assessment
- Where and how do you start?
- Who needs to be involved?
- Developing the necessary documentation
- Developing and assuring Asset Management competence
- Embedding the processes
- Creating an "Asset Management" culture
- Additional Tools and Resources

Overview of ISO 55000, ISO 55001 and ISO 55002

- How did we get here? A short history of AM
- Structure and content of the standards
- How and why to use these standards (are you seeking alignment, compliance or certification?)

ISO 55001 Requirements and ISO 55002 Guidance

Certification

- The ISO certification process
- Finding a suitable certification body

Course Summary



2.2.3 Asset Management Master Class – Course Outline

About this Course

This comprehensive 5-day course is designed for those who wish to obtain a detailed understanding of Asset Management and ISO 55000: 2014 in preparation for a role as an Asset Management professional. Prepared in alignment with the UK's Institute of Asset Management (IAM) competence and training framework, this course covers all the key areas involved in Asset Management, and is designed to provide participants with a comprehensive understanding of:

- Asset Management Concepts and Principles
- ISO 55000: 2014, ISO 55001: 2014 and ISO 55002: 2014, and
- The GFMAM Asset Management Landscape

It is an information-packed, practical course for people who will be responsible for the development, implementation, maintenance or internal auditing of an organisation's asset management system.

Led by one of Assetivity's CAMA Certified Asset Management Assessors, participants will gain a detailed insight into:

- Key Asset Management principles
- The Benefits of Asset Management
- Introduction to Asset Management Policy
- Implementing Asset Management Systems
- Defining Asset Management Policy & Strategy
- Effective Asset Management Strategies and Plans
- Building an Asset Management Organisation
- Implementing Asset Management Plans
- Assessing Asset Management Risk and Performance

Participants will be involved in class and group discussions facilitated by our course trainer.

Who Should Attend

This course is intended for personnel responsible for the development, implementation and operation of an organisation's asset management system, or for assessing compliance with that system.

Accreditation

This course meets the requirements of the entire suite of IAM Asset Management Courses:

- Asset Management Principles and Policy o A1 The Benefits of Asset Management
 - A2 Introduction to Asset Management Policy
- Implementing Asset Management Systems o B1 The Asset Management System
 - B2 Defining Asset Management Policy & Strategy
 - B3 Effective Asset Management Strategies and Plans
 - B4 Building an Asset Management Organisation

- B5 Implementing Asset Management Plans
- B6 Assessing Asset Management Risk and Performance

It also counts towards Engineers Australia's requirements for Continuing Professional Development (CPD) as Type II CPD and is similarly recognised by many other schemes.

Learning Objectives

By the end of this course, delegates should (as a minimum) be able to:

- Understand Asset Management
- Understand Asset Management Documentation
- Understand Asset Management Planning
- Understand the Asset Management System
- Understand Asset Management Performance and Improvement
- Understand information requirements for Asset Management
- Describe the main implications of asset management for organisational structure, roles and responsibilities and reporting lines
- Describe how the performance of people working in asset management can be assessed and improved
- Describe how the criticality of products, services and their suppliers can be analysed
- Give examples of how asset management affects the specification of requirements for supplied goods and services
- Describe how organisational culture is likely to affect asset management performance
- Describe how to analyse the criticality of procured products and services
- Give examples of criteria which can be used to assess the performance of asset management teams
- Understand how all of the above aligns with the requirements of ISO 55001: 2014, and how to assess and/or ensure compliance with ISO 55001: 2014 in each of the above areas.

Assessment

As this course is part of the IAM's competency framework, each attendee will be formally assessed to measure successful achievement of competence. This assessment will be based on formal testing. Participants who successfully demonstrate competence in this course will be issued an IAM Certificate of Competence.

In addition, participants undertake case studies and exercises to ensure their new knowledge transfers into practical skills and the confidence to apply them in the workplace.

Course Content

Day 1

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM

- Gain an understanding of what is expected through the course
- Objectives of the training course.

Asset Management Concepts

- What is Asset Management?

- How does Asset Management deliver Value?
- The fundamentals of Asset Management
- Value
- Alignment
- Leadership
- Assurance
- Asset Management Roles & Responsibilities
- *Exercise – Asset Life Cycle Challenges*
- The Benefits of Asset Management
- Asset Management vs Other Business Practices
- Case Studies – Successful Asset Management organisations

The Asset Management System

- What is the Asset Management System?
- Context of the Organisation
- Leadership
- Support
- Operation of the AMS
- Performance Evaluation
- Improvement

Asset Management Core Documents – An Overview

- Asset Management Policy
- Strategic Asset Management Plans
- Asset Management Objectives
- Asset Management Plans
- Integrating and Aligning Asset Management Plans

Day 2

Recap of Day 1

Stakeholder Engagement

- Identifying Stakeholders
- Stakeholder Analysis
- *Exercise – Stakeholder Analysis*

Asset Management Objectives

- What are they and why are they required?
- Using Asset Management Objectives to create “line of sight” for Asset Management activities to Organisational Objectives

Asset Management Policy

- What is it and why is it required?
- Key Elements of an Asset Management Policy
- ISO 55001: 2014 Requirements
- How to Develop an Asset Management Policy
- *Exercise – Asset Management Policy Review and Comparison*

Strategic Asset Management Plan

- What is it and why is it required?
- Key Elements of a Strategic Asset Management Plan
- ISO 55001: 2014 Requirements
- How to Develop a Strategic Asset Management Plan
- *Exercise – Strategic Asset Management Plan Review and Comparison*

Effective Asset Management Plans

- What are they and why are they required?
- Key Elements of Asset Management Plans
- ISO 55001: 2014 Requirements
- Structuring Asset Management Plans
- How to Develop Asset Management Plans
- *Exercise – Asset Management Plan Content*

Day 3

Recap of Day 2

Asset Management Decision Making

- Life Cycle Costing
- *Exercise –Life Cycle Costing*
- Value Optimisation
- Reliability Centred Maintenance and Preventive Maintenance Optimisation
- *Exercise –Reliability Centred Maintenance*
- Shutdowns and Outage Strategies

Risk Management

Risk Management Basics

- Risk Matrices
- The Bow-Tie approach to Risk Management
- Case Study – Severn Rail Tunnel Crash
- Risk Controls
- Contingency Planning
- Sustainable Development

Building an Asset Management Organisation

- Organisational Structures for effective Asset Management
- *Exercise –Organisation Structure*
- Procurement and Supply Chain Management
- *Exercise –Procurement and Outsourcing*
- Organisation Culture and Leadership
- Competence Management
- *Exercise –Asset Management Competence*
- Implementing Asset Management

Day 4

Recap of Day 3

Asset Knowledge and Information

- Data, Information, Knowledge and Wisdom
- Asset Information Strategy
- Asset Information Standards
- Asset Information Systems
- *Exercise –Asset Management Information*

- Data and Information Management

Implementing Asset Management Plans

- *Exercise – Asset Lifecycle Delivery Self-Assessment*
- Assuring Regulatory Compliance
- *Exercise – Technical Standards*
- Configuration Management
- Case Study – Fire from Ice
- Reliability Engineering
- Fault & Incident Response
- *Exercise – Reliability Engineering and Fault Response*
- Asset Creation/Acquisition
- Case Study – SNCF
- Systems Engineering
- Asset Operations
- *Exercise – Operate for Reliability*
- Maintenance Delivery
- *Exercise – Maintenance Documentation*
- Shutdown and Outage Management
- Resource Management
- Spare Parts Optimisation
- Asset Disposal/Renewal
- *Exercise – Asset Obsolescence Strategy*
- Management of Change

Day 5

Recap of Day 4

Assessing Asset Management Risk and Performance

- Performance Measurement
- Asset Performance and Health Monitoring
- *Exercise – Asset Management KPIs*
- Asset Management System Monitoring
- Management Review, Audit and Assurance

Aligning with ISO 55001: 2014

- How and Why to Use ISO 55000: 2014, ISO 55001: 2014 and ISO 55002: 2014

- Key Requirements and Their Interpretation
 - *Exercise – ISO 55001: 2014 Self Audit*
 - Review of the Key Clauses in ISO 55001: 2014
 - *Exercise – ISO 55001: 2014 Clauses – Compliance Requirements*
- Demonstrating Compliance with ISO 55001: 2014

Course Summary

Assessment



3 Best Practice Maintenance & Reliability Courses

3.1 Maintenance Management Courses

3.1.1 Introduction to Maintenance Management

1 Day – An overview of maintenance management requirements for new maintenance managers

About this Course

Maintenance is a critical business activity for organisations in capital-intensive industries. It must be managed well in order for these organisations to be able to reach their goals in terms of output, safety, environmental performance and costs. There is a growing body of knowledge which, when implemented effectively, assists organisations to manage their maintenance activities efficiently and effectively.

This course provides an overview of the key elements that make up an effective Maintenance Management System, and discusses the challenges associated with implementing and maintaining this system.

Who Should Attend

This course is intended for new maintenance managers and those who routinely engage with them. Typical attendees include:

- Maintenance Managers
- Maintenance Supervisors, Superintendents and Engineers
- Maintenance Planners, Schedulers and Controllers
- Engineers and Engineering Managers
- Operations or Production Superintendents and Managers
- Project Managers

Learning Objectives

By the end of this course, delegates should (as a minimum) be able to:

- Align maintenance policies and procedures with business and operational needs
- State the principles of sound work management
- Revise routine maintenance programs to maximise plant uptime and eliminate preventable failures
- Describe techniques for motivating the maintenance workforce and improving work quality
- Implement maintenance performance measures to drive continuous improvement

Assessment

This course is not formally assessed, though participants undertake case studies and exercises to ensure their new knowledge transfers into practical skills and the confidence to apply them in the workplace. If desired, assessment can be added to in-house courses.

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in maintenance management
- Objectives of the training course
- Gain an understanding of what is expected through the course

An Overview of Maintenance Management

- Understanding the business impact of maintenance on operations
- Defining the maintenance challenge
- A framework for achieving Operational Excellence
- Key tools for effective Maintenance Management

Maintenance Work Management – the key prerequisite for efficient Maintenance

- Identifying Maintenance Work
- Planning Maintenance Work
- Scheduling Maintenance Work
- Executing Maintenance Work
- Closing Out Maintenance Work

Materials Management – making sure you have the parts and materials that Maintenance needs

- The importance of a good parts catalogue
- Making effective use of Parts Lists and Bills of Materials
- Managing rotatables and repairables

- Ensuring that stock levels are accurately recorded

Measuring Maintenance Performance

- Why measure performance?
- Leading and Lagging Measures
- Typical Maintenance Performance Measures
- Analysing performance measures – using the results
- Establishing a performance management process

Computerised Maintenance Management Systems

- The role of a CMMS
- Ways that a CMMS can assist with managing and improving Maintenance
- The challenges of ensuring that your CMMS contains good data

Optimising your PM program through Preventative Maintenance Optimisation (PMO)

- Understanding Reliability Centred Maintenance (RCM) concepts
- Nine steps to PM Optimisation

Eliminating Failures through Root Cause Analysis (RCA)

- Why most problem solving processes fail
- 12 Steps to effective Root Cause Analysis

Course Summa

3.1.2 Maintenance Planning & Scheduling Excellence

2 Days – For the development and improvement of maintenance planning skills

About this Course

This interactive course draws on Assetivity's extensive experience in maintenance planning and scheduling to develop the essential skills required by all Maintenance Planners and Schedulers, and further hones the skills of those already experienced in this field.

Modern CMMS and ERP systems offer massive potential for managing and optimising maintenance work, yet most organisations still struggle to achieve high – or even reasonable – levels of productivity in their maintenance workforce. This course provides solutions to this issue in the form of a framework and fundamental skills for planning and scheduling maintenance work for efficient completion. Participants are constantly challenged to ensure they understand not only what to do, but why it is important and how it contributes to achieving maintenance, asset management and, ultimately, organisational goals. The presentations and discussion are backed up by hands-on exercises that reinforce the key learnings.

In this course, participants will gain an understanding of:

- The link between asset management, maintenance management and work management
- The work management cycle – identify, plan, schedule, execute and complete
- Practical tips and tricks for completing each part of the cycle

Who Should Attend

This course is intended for maintenance planners and schedulers, plus those who regularly interact with them. Typical attendees include:

- Maintenance Supervisors, Superintendents and Managers
- Engineers
- Maintenance Planners, Schedulers and Controllers (including future candidates)

Learning Objectives

By the end of this course, delegates should (as a minimum) be able to:

- Explain the fundamentals of asset management and the role of work management within it
- State the key elements of a typical work management framework and the purpose of each
- Describe basic processes for:
 - Identifying work
 - Planning work
 - Scheduling work
 - Executing work
 - Completing work

Assessment

This course is not formally assessed, though participants undertake case studies and exercises to ensure their new knowledge transfers into practical skills and the confidence to apply them in the workplace. If desired, assessment can be added to in-house courses.

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in WM
- Objectives of the training course
- Gain an understanding of what is expected through the course

What is Work Management?

- Asset and maintenance management
- The role of maintenance
- The role of work management
- A typical work management framework

Identifying Work

- Work identification
- Work screening
- Work prioritisation
- *Exercise – Prioritising and Screening Work*

Planning Work

- Planning
- Work packs
- Materials and resource procurement
- *Exercise – Work Planning*

Scheduling Work

- Scheduling
- Standing Work Orders
- Backlog management
- Forwardlog management
- *Exercise – Maintenance Scheduling*

Executing Work

- Performing work
- *Exercise – Maintenance Role Play*

Completing Work

- Recording work history
- Analysing work history
- Continuous improvement
- *Exercise – Analysing Work History*

Course Summary



3.1.3 Effective Shutdown Planning & Management Course

1 Day – A specialist course in shutdown planning and management

About this Course

This specialist course focusses on the unique challenges and opportunities created by shutdowns. Participants will undertake role playing and other interactive exercises to develop deep understanding of the key principles and requirements for meeting shutdown schedules and budgets to deliver true value to the organisation.

Assetivity offers this course as an extension of our acclaimed Maintenance Planning & Scheduling Excellence course to teach the special skills and techniques required for successful planning and management of shutdowns, turnarounds and outages (STO). We will show participants why STO events are special and how to deal with them.

Participants will gain an understanding of:

- The unique characteristics, challenges and opportunities associated with STO events
- Planning and scheduling techniques for improving shutdown performance
- Keys for effective shutdown management

Who Should Attend

This course is intended for all staff (both the owner's and contractor's) who are involved in the planning, coordination and execution of STO's. Typical attendees include:

- Maintenance Managers
- Project Managers
- Shutdown Managers and Coordinators
- Inspection, Materials and Safety Professionals
- Planning, Scheduling and Cost Control Staff
- Construction Superintendents and Supervisors
- Operations Superintendents and Shift Supervisors
- Project Engineers
- Contract Administrators

Learning Objectives

By the end of this course, participants should (as a minimum) be able to:

- Understand and appreciate the 'why' of shutdown planning requirements and the associated capital and resource implications for an organisation.
- State the various phases of a typical shutdown cycle and describe what is involved in the execution of each phase.
- Project manage, co-ordinate and communicate during shutdowns
- Apply shutdown best practices and planning
- Employ effective strategies for tracking costs, duration and quality control during shutdowns
- Understand risk management and mitigation strategies employed for shutdowns
- Identify continuous improvement opportunities

Assessment

This course is not formally assessed, though participants undertake case studies and exercises to ensure their new knowledge transfers into practical skills and the confidence to apply them in the workplace. If desired, assessment can be added to in-house courses.

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course
- Gain an understanding of what is expected through the course

Overview – Context and Strategy

- Why shutdown and how often
- High level process flow map for major shutdowns, turnarounds and outages
- Pre- Shutdowns, turnarounds and outages assessment
- Management Process for Shutdowns, turnarounds and outages

Shutdown Planning and Preparation

- Identification of work and work scope planning
- Process controls, (scope, budget, schedule, safety)
- Workflow including critical path elements
- Contractor management, Communications and stake holder management

- Labour resourcing, spares and materials readiness
- Site preparation and facilities management
- Risk and safety management
- Execution Plan

Shutdown Execution

- Effective Shutdown Supervision
- Tracking and reporting Shutdown progress
- Shift handover practices
- Managing emergent work
- Dealing with the unexpected

Shutdown Completion and Review

- Final inspection, punch listing, quality assessment and hand over to operations
- Commissioning and start-up
- Post shutdown review
- Continuous improvement opportunities- what worked and what did not work?

Course Summary

3.1.4 Spare Parts Optimisation Course

1 Day – An introductory course on spare parts optimisation

About this Course

This interactive course covers the principles and processes for optimising Maintenance Repair and Overhaul (MRO) inventory. Participants will undertake practical exercises to build understanding of the key principles of spare parts optimisation and practical skills in their application.

Assetivity offers this course as a basic skills course for spare parts stakeholders – including supply, maintenance and operations. We will show participants how all of these organisational elements must work together to establish the optimum spares strategy for a particular situation, as well as to continually review and improve that strategy.

Participants will gain an understanding of:

- The principles of spare parts optimisation in a maintenance repair and operating (MRO) environment
- Techniques for evaluating the factors that influence the spares holding decision
- Alternative solutions to large inventory

Effective application of these principles and techniques will simultaneously drive both reductions in inventory value and increases in inventory performance.

Who Should Attend

All personnel with an interest in the spare parts inventory, including those from the following functions:

- Stores, Material Planning and Purchasing/Procurement
- Maintenance Supervisors, Superintendents and Engineers
- Maintenance Planners, Schedulers and Controllers
- Engineers and Engineering Managers
- Finance

Learning Objectives

By the end of this course, participants should (as a minimum) be able to:

- State the value proposition for spare parts holdings with respect to the business goals
- Apply an equipment criticality process to identify critical spares
- Apply analysis techniques to identify candidates for inventory optimisation
- Estimate the key factors in a spares holding decision:
- Demand for the spare, including from both preventive and corrective maintenance
- The holding cost for the spare
- The cost of a stock outage for the spare
- The number of spares required to achieve an acceptable level of risk of an outage
- Identify alternative solutions to holding spares
- Describe the importance of a continuous improvement approach to spares holdings

Assessment

This course is not formally assessed, though participants undertake case studies and exercises to ensure their new knowledge transfers into practical skills and the confidence to apply them in the workplace. If desired, assessment can be added to in-house courses.

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course
- Gain an understanding of what is expected through the course

Key Concepts for Spare Parts Optimisation

- The need for spares
- Why you may need SPO
- Enough is enough
- Definitions and terminology
- Exercise – Inventory KPIs

The 10 Step SPO Process

Step One – Determine Scope of Analysis

- How to select equipment for analysis
- Documenting the scope

Step Two – Review Catalogue

- Collecting & purifying data
- Confirming criticality
- Activity – Eliminate Duplicates
- Exercise – Determine Criticality

Step Three – Check for Supply Issues

- Locating and reviewing additional inputs

Step Four – Review Insurance Stock

- Dealing with insurance stock
- Activity – Insurance Stock Review

Step Five – Review Consumable Stock

- Dealing with consumable stock
- Usage Based Analysis
- Exercise – MIN Stock Calculation
- Activity – Consumable Stock Review

Step Six – Review Rotable Stock

- Dealing with rotatable stock
- Activity: Rotable Stock Review

Step Seven – Gain Approval

- Facilitating timely approvals

Step Eight – Implement Recommended Actions

- Managing change

Step Nine – Track Success

- Using performance measures

Step Ten – Continuous Improvement

- The Journey to Operational Excellence
- The PDCA cycle and the Deming wheel

Course Summary

3.2 Reliability Engineering Courses

3.2.1 Introduction to Reliability Improvement

1 Day – Reliability improvement principles and basic techniques

About this Course

This course provides an introduction to the principles and techniques required to achieve improvements in equipment reliability. After attending this course, participants should be able to identify how best to apply reliability improvement tools to drive improvements in operational performance.

Throughout the course, participants are challenged to be able to identify the real business benefits associated with each technique, in order to apply a business-centric approach to reliability improvement.

Who Should Attend

This course is intended for personnel who require a basic understanding of the techniques and practices of reliability engineering in order to effectively carry out their own duties. Typical attendees include:

- Maintenance Managers
- Maintenance Supervisors, Superintendents and Engineers
- Maintenance Planners, Schedulers and Controllers
- Engineers and Engineering Managers
- Operations or Production Superintendents and Managers
- Project Managers

Learning Objectives

By the end of this course, participants should (as a minimum) be able to:

- State the benefits improvements in reliability and maintainability bring to the business
- Describe key reliability and maintainability concepts and principles
- Identify techniques that each business area can apply to improve reliability

Assessment

This course is not formally assessed, though participants undertake case studies and exercises to ensure their new knowledge transfers into practical skills and the confidence to apply them in the workplace. If desired, assessment can be added to in-house courses.

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course
- Gain an understanding of what is expected through the course

Reliability Concepts and Principles

- Terminology
- Asset Management
- The reliability relationship
- What causes failure?
- The journey to operational excellence
- The equipment reliability death spiral
- The asset life cycle

Design and Reliability

- Specifying reliability targets
- Design for reliability
- Design for maintainability
- Reliability modelling

Operators and Reliability

- Operational planning
- Operator driven reliability
- Operational excellence

Maintainers and Reliability

- Root Cause Analysis/Defect Elimination
- Reliability Centred Maintenance
- Planned Maintenance Optimisation
- Maintenance quality

Suppliers and Reliability

- Spare parts optimisation and holdings
- Spare parts specification and procurement
- Spare parts storage and maintenance

Reliability Measurement

- Continuous improvement
- Performance monitoring and feedback

Course Summary



3.2.2 Reliability Centred Maintenance (RCM) & PM Optimisation (PMO) Team Member Course

2 Days – A practical skills course for personnel involved in RCM and PMO teams

About this Course

This course introduces participants to the concepts and principles underpinning Reliability Centred Maintenance (RCM) and PM Optimisation (PMO), and gives them the skills to be able to effectively participate in developing Equipment Maintenance Strategies using RCM and PMO processes.

The course shows participants how to apply either a “traditional” RCM approach or a more streamlined PMO approach. The benefits and pitfalls of both approaches are discussed, so that participants have an understanding of which approach to apply. Throughout the course, concepts are made concrete by applying the process to practical case studies, based on real-life examples from Assetivity’s extensive experience in this area.

This course is directed towards personnel who are expected to contribute to (but not lead) equipment maintenance strategy development activities. Personnel seeking to lead such activities should undertake this course, plus an appropriately tailored version of Assetivity’s Maintenance Engineering Facilitation course.

In this course, participants will gain an understanding of:

- Practical approaches for implementing RCM and PMO and how to avoid the most common implementation pitfalls
- The results that others have achieved from implementing RCM and PMO processes
- How RCM and PMO fit into an overall Asset Reliability Improvement program
- The benefits of engaging both operators and maintainers in the equipment strategy review process

Who Should Attend

This course is intended for personnel who are involved with the development and implementation of maintenance tactics and strategies. Typical attendees include:

- Operations, Production and Maintenance Managers
- Process Engineers, Maintenance Engineers and Reliability Engineers
- Operations Supervisors and Maintenance Supervisors,
- Maintenance Planners
- Tradespeople and Technicians
- Plant Operators

Learning Objectives

By the end of this course, participants should (as a minimum) be able to:

- Describe the benefits that can be gained through an effective PM program.
- Describe the principles of both RCM and PMO.
- Identify the steps involved in developing an equipment strategy.

- Contribute to each step, particularly:
- Applying RCM or PMO techniques as appropriate to the equipment,
- Identifying equipment functions and failure modes,
- Selecting recommended maintenance tasks, and
- Identifying additional improvement tasks.

Assessment

This course is not formally assessed, though participants undertake case studies and exercises to ensure their new knowledge transfers into practical skills and the confidence to apply them in the workplace. If desired, assessment can be added to in-house courses.

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in equipment strategy development
- Objectives of the training course
- Gain an understanding of what is expected through the course

Why you may need RCM or PMO

- The origins of most existing PM programs
- The likely possible improvements within your current maintenance program
- Origins of FMEA, RCM and PMO
- Underlying principles of equipment strategy development

Step One – Determine Scope of Analysis

- How to select equipment for analysis
- Documenting the scope

Step Two – Identify Primary Functions

- Identifying functions
- Functional Performance Standards

Step Three – Verify Equipment Capability

- Detailing performance requirements
- Identifying design capability

- Identifying and assessing gaps

Step Four – Identify Failure Modes

- What is a failure mode?
- The RCM approach to identifying failure modes
- Exercise: Identifying Failure Modes using the RCM approach
- The PMO approach to identifying failure modes
- Exercise: Identifying Failure Modes using the PMO approach
- Case Study: Applying Steps 3-4

Step Five – Analyse Failure Modes, Effects and Consequences

- Describing failure effects and Consequences
 - Hidden Failures
 - Safety/Environmental
 - Operational Consequences
 - Non-Operational Consequences
- Exercise: Classifying Consequences

Step Six – Select Maintenance Tasks

- Assessing task effectiveness
- Types of consequences
- Assessing task applicability
- Case Study: Applying Steps 5-6

Step Seven – Identify Additional Improvement Tasks

- Types of one-time changes
 - Equipment modifications
 - Operating practices
 - Repair techniques
- Maintenance error management

Step Eight – Consolidate Schedules

- Identifying windows of opportunity
- Reviewing shortest interval shutdown tasks
- Identifying & resolving constraints
- Packaging & sequencing tasks
- Estimating labour & downtime

- Levelling workloads
- Case Study: Applying Steps 7-8

Step Nine – Gain Approval

- Approving implementation
- Managing review quality

Step Ten – Implement Recommended Actions

- Implementing process outcomes

Step Eleven – Track Success

- Measuring achievement

Beyond RCM and PMO

- Continuous improvement



3.2.3 Reliability Centred Maintenance (RCM) & PM Optimisation (PMO) Facilitation Course

3 Day Extension Course for RCM and PMO Facilitators

About this Course

This is an extension to our Reliability Centred Maintenance and PM Optimisation (RCM/PMO) for Team Members course— in order to turn team members into facilitators. The course focuses on building practical skills in applying RCM and PMO, drawing on the technical knowledge in the relevant team member course, but adding new theory and extensive practical sessions focused on facilitation. The training is the result of over 15 years of training, consultation and implementation of successful maintenance engineering change programs.

Participants will gain a more detailed understanding of:

- ▣ More complex concepts and principles underlying RCM and PMO
- ▣ The skills and tasks required to successfully facilitate structured Equipment Strategy Development workshops using both RCM and PMO processes

Who Should Attend

This course is intended for personnel who are expected to lead or facilitate RCM and PMO analyses. Successful completion of our RCM and PM Optimisation for Team Members course is a prerequisite for participation in this course. Typical attendees include:

- Engineers – particularly reliability and maintenance engineers
- Maintenance Supervisors, Superintendents and Managers

Accreditation

This course leverages off Assetivity's extensive experience in development of maintenance strategies for physical assets in a wide variety of industries, including mining, mineral processing, oil and gas, utilities, manufacturing, transport and defence.

Learning Objectives

By the end of this course, participants should (as a minimum) be able to:

- Explain the role of a RCM/PMO workshop facilitator
- Describe the requirements for effective facilitation of RCM/PMO workshops
- Demonstrate the ability to facilitate maintenance engineering workshops
- Apply RCM and PMO in more complex situations
- Guide others through the RCM and PMO process, particularly:
- Applying RCM or PMO techniques as appropriate to the equipment,
- Identifying equipment functions and failure modes,
- Selecting recommended maintenance tasks, and
- Identifying additional improvement tasks.

Assessment

Participants are assessed against a comprehensive competency framework, requiring practical demonstration of specific facilitation skills and technical knowledge of the methodology. Any issues are discussed with the individual participant and a course of action is agreed to rectify the deficiency.

Course Content

Introduction to Facilitation

- The role of the facilitator
- Requirements to become an effective facilitator:
- Personal attributes
- Personal qualities
- Management skills

How to Facilitate an RCM/PMO Workshop

- Applying the methodology
- Managing the analysis
- Managerial skills and qualities
- Conducting the meetings
- Problems facilitators may encounter
- Handling difficult interactions
- Time management
- Admin, logistics and managing upwards
- Facilitator competency assessment framework

Tips & Tricks

- Survival tips and tricks to get you through a facilitation exercise

Practical Sessions

- Each participant will prepare and lead at least two RCM/PMO facilitation sessions for equipment specific to your site/organisation
- Other participants will act as the audience and provide feedback
- Assetivity's expert will provide mentoring

Review and Reflect

- What went well? What could be done better for next time?

Indicators for Success

- How to measure the success of the RCM/PMO program.

Course Summary

Assessment

3.2.4 Defect Elimination

1 Day – Defect elimination techniques for team members

About this Course

This interactive course provides participants with the skills needed to effectively eliminate defects that cause equipment reliability issues. It outlines a problem solving process built on Root Cause Analysis (RCA) principles and includes a series of practical exercises.

Assetivity offers this course as a basic skills course in identifying and eliminating defects that result in poor equipment reliability performance.

Participants will gain an understanding of:

- How to select potential candidate projects for defect elimination
- How to apply simple problem solving techniques, such as “5 Why’s” and others, to analyse and eliminate causes of reliability defects
- How to ensure that reliability improvements “stick” and lead to sustainable improvement

Who Should Attend

This course is intended for anyone involved in identifying and solving equipment reliability problems. Typical attendees include:

- Operations or Production and Maintenance Managers
- Process Engineers, Maintenance Engineers and Reliability Engineers
- Operations Supervisors and Maintenance Supervisors
- Maintenance Planners and Schedulers
- Tradespeople and Technicians
- Plant Operators
- Business improvement staff

Learning Objectives

By the end of this course, participants should (as a minimum) be able to:

- Describe the concepts behind Root Cause Analysis thinking
- Select candidate projects for defect elimination
- Act as part of a team to apply the "5 Why's" technique to identify root causes
- Propose and rank solutions to root causes
- Describe how to ensure that reliability improvements "stick" and lead to sustainable improvement.

Assessment

This course is not formally assessed, though participants undertake case studies and exercises to ensure their new knowledge transfers into practical skills and the confidence to apply them in the workplace. If desired, assessment can be added to in-house courses.

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course
- Gain an understanding of what is expected through the course

Importance of Failure Elimination

- The Journey to Operational Excellence

Why most Traditional Problem Solving Approaches Fail

- Stopping too soon
- The “Blame Game”
- The “Root Cause Myth”
- Storytelling

The Defect Elimination Process

- Overview

Step One – Identify Unwanted Events

- Which problems to investigate – significant and chronic events

Step Two – Assessing Unwanted Events and Selecting Events for Analysis

- Sample guidelines for selecting events
- Identifying unwanted events
- Preserving and collecting data

Step Three – Analysing Unwanted Events

- Methods for performing RCA
- Cause-Effect principles
- Types of causes
- Ishikawa (Fishbone) diagrams
- “5 Why’s” analysis
- Cause-Effect diagrams
- Selecting solutions
- Exercise – Ishikawa diagram and “5 Why’s” analysis

Step Four – Decide and Act

- Implementing outcomes

Step Five – Assess and Improve

- Measuring performance

Course Summary

3.2.5 Root Cause Analysis for Team Members

2 Days – A practical skills course for Root Cause Analysis (RCA) practitioners

About this Course

This course provides practical skills for personnel that have on-going and regular responsibilities for participating in RCA investigations. It extends our one day Defect Elimination course with a more formal RCA methodology, suited for more complex problems, and additional case studies to improve skills development and retention. Throughout the course, concepts are made concrete through reference to real-life examples brought to the course by the participants, as well as selected examples from other situations and organisations.

After an introduction to some key psychological phenomena that inhibit the problem-solving capabilities of individuals and teams, it then introduces methods, tools and techniques which overcome these phenomena, and builds individual skills through practice.

The course concludes by discussing how best to ensure that Root Cause Analysis techniques are successfully implemented and utilised within participants' organisations.

Assetivity's Root Cause Analysis problem solving process:

- Focuses on Solutions and deriving business benefits
- Addresses failures at Physical, Human and Organisational levels
- Avoids the "blame game"
- Is suitable for one-off significant events, as well as repetitive, chronic failures
- Is simple and easy to use
- Can be used by individuals or in teams
- Allows for creativity in solutions
- Insists on a strong basis in fact

Who Should Attend

This course is intended for anyone involved in identifying and solving equipment reliability problems. Typical attendees include:

- Operations or Production and Maintenance Managers
- Process Engineers, Maintenance Engineers and Reliability Engineers
- Operations Supervisors and Maintenance Supervisors
- Maintenance Planners and Schedulers
- Tradespeople and Technicians
- Plant Operators
- Business improvement staff

Learning Objectives

By the end of this course, participants should (as a minimum) be able to:

- Describe the concepts behind Root Cause Analysis thinking

- Give reasons why most traditional problem solving approaches do not work effectively
- Identify and apply criteria for selecting events to investigate
- Select and apply an appropriate RCA technique for simple and complex events
- Propose and rank solutions to root causes
- Describe how to ensure that reliability improvements "stick" and lead to sustainable improvement

Assessment

This course is not formally assessed, though participants undertake case studies and exercises to ensure their new knowledge transfers into practical skills and the confidence to apply them in the workplace. If desired, assessment can be added to in-house courses.

Course Content

Introduction

- Outline the contents of the training package
- Introductions to other participants and their roles in AM
- Objectives of the training course
- Gain an understanding of what is expected through the course

Why most Traditional Problem Solving processes fail

- Stopping too soon
- The "Blame Game"
- The Root Cause Myth
- The Illusion of Common Sense and One Reality
- Failure to think "outside the box"
- Categorical Thinking
- Storytelling

Step One – Defining the Problem

- What is a "failure"?
- Recurring, chronic problem, or one-off catastrophic failure?
- Specifying required performance – "want" vs. "can" vs. "did"
- Variability in Processes and Parts – when has a failure occurred?
- Focus on business consequences
- Case Study: Participant problems

Step Two – Preserving and Collecting Data

- Treat the scene like a crime scene
 - Parts
 - Position
 - People
 - Documents
 - Electronic Records
- Conducting Interviews
- Case Study: Participant problems

Step Three – Minimising Further Consequences

- What can be done to overcome the immediate consequences of failure?
- Could this occur again while the investigation is being conducted?
- What can we do to minimise further consequences?
- Case Study: Participant problems
- Case Study: Participant problems

Step Four – Arranging the Analysis Team

- When is a team based analysis appropriate?
- Who should be involved?
- Who will implement the outcomes?
- Case Study: Participant problems

Step Five – Analysing the Data

- Cause-effect principles
- Physical Root Causes

- Human Root Causes
- System (Latent) Root Causes
- Searching for patterns and comparisons
- Brainstorm for causes
- Preparing a Cause-Effect diagram
- Case Study: Participant problems

Step Six – Verifying hypotheses and validating causes

- Run charts
- Additional data requirements
- Case Study: Participant problems

Step Seven – Developing Solutions

- Brainstorm for solutions
- Solution guidelines
- Solution Killers
- Validating against the Cause-Effect diagram
- Case Study: Participant problems

Step Eight – Selecting Recommended Solution

- Assessing alternatives
- Case Study: Participant problems

Step Nine – Communicating Findings and Recommendations

- Developing a Report
- Developing a Presentation
 - Agenda
 - Content
 - Presentation skills
- Case Study: Participant problems

Step Ten – Implementing Outcomes

- Obtaining approvals
- Tracking implementation progress
- Getting proactive work done in a reactive maintenance environment
- Case Study: Participant problems

Step Eleven – Tracking for Results

- Developing and implementing tracking metrics
- Case Study: Participant problems

Step Twelve – Institutionalising the Process

- Training
- When to Perform an Analysis
- Tracking Implementation Compliance

Course Summary

3.2.6 Root Cause Analysis for Facilitators

3 Day Practical Skills Course for Root Cause Analysis (RCA) facilitators

About this Course

This course provides practical skills for personnel that have on-going and regular responsibilities for participating in and leading RCA investigations. It extends our two day Root Cause Analysis for Team Members course to describe a formal RCA methodology, suited for more complex problems, case studies to improve skills development and retention, and new theory and extensive practical sessions focused on facilitation. Throughout the course, concepts are made concrete through reference to real-life examples brought to the course by the participants, as well as selected examples from other situations and organisations.

After an introduction to some key psychological phenomena that inhibit the problem-solving capabilities of individuals and teams, it then introduces methods, tools and techniques which overcome these phenomena, and builds individual skills through practice.

Throughout the course, participants are given the opportunity to both lead and participate in RCA exercises which build their analytical and problem-solving skills, as well as their facilitation skills.

Assetivity's Root Cause Analysis problem solving process:

- Focuses on solutions and deriving business benefits
- Addresses failures at Physical, Human and Organisational levels
- Avoids the "blame game"
- Is suitable for one-off significant events, as well as repetitive, chronic failures
- Is simple and easy to use
- Can be used by individuals or in teams
- Allows for creativity in solutions
- Insists on a strong basis in fact

Who Should Attend

This course is intended for anyone involved in leading the identification and solution of equipment reliability problems. Typical attendees include:

- Reliability Engineers, Process Engineers and Maintenance Engineers
- Operations or Production and Maintenance Managers
- Operations Supervisors and Maintenance Supervisors
- Business improvement staff

Trades level staff and operators may also benefit from this course, but are more likely to benefit more from attending our 2-day Root Cause Analysis for Team Members course, or 1-day Defect Elimination course.

Accreditation

This course leverages off Assetivity's extensive experience in development, application and auditing of defect elimination processes based on RCA principles in a wide variety of asset-intensive industries, including mining, mineral processing, oil and gas, utilities, manufacturing, transport and defence. The course counts towards Engineers Australia's requirements for Continuing Professional Development (CPD) as Type II CPD and is similarly recognised by many other schemes.

Learning Objectives

By the end of this course, participants should (as a minimum) be able to:

- Describe the concepts behind Root Cause Analysis thinking
- Give reasons why most traditional problem solving approaches do not work effectively
- Identify and apply criteria for selecting events to investigate
- Select and apply an appropriate RCA technique for simple and complex events
- Propose and rank solutions to root causes
- Describe how to ensure that reliability improvements "stick" and lead to sustainable improvement
- Demonstrate the capability to organise and lead RCA investigations.

Assessment

This course is not formally assessed, though it includes exercises and case studies to reinforce learning and gain experience to give participants the confidence to apply knowledge in the workplace.

Course Content

Introduction: Why do we need Root Cause Analysis?

- Why most traditional problem solving processes fail

Case Study:

- Select recent, real problem from participants' experience (one per group)
- Define Problem

12 Steps to Effective Root Cause Analysis

Step One – Defining the Problem

- Is there a problem?
- Natural variability
- One-off "significant" events
- Repetitive "chronic" events
- Which problems should we investigate?
- Elements of good problem definition

Step Two – Preserving and Collecting Data

- Treat the scene like a crime scene
- What data should we collect?
- What tools can we use?
- What stops us collecting data?
- Interviewing – some tips

Case Study:

- Examine and evaluate data from case study example

Step Three – Minimising Further Consequences

- What can be done to minimise immediate consequences?
- Temporary fixes

Case Study:

- What was/could have been done in case study example?

Step Four – Arranging the Analysis Team

- Team-based vs individual problem solving
- Successful problem solving in teams
- Facilitator role

Case Study:

- Assess case study example – who should be involved?

Step Five – Analysing the Data

- Cause-effect principles
- Physical Root Causes
- Human Root Causes
- System (Latent) Root Causes
- Searching for patterns and comparisons
- Conducting a 5 Whys analysis
- Preparing a Cause-Effect diagram

Case Study:

- Develop Cause-Effect diagram for case study example

Step Six – Verifying hypotheses and validating causes

- Verifying hypotheses – could the “cause” lead to the event?
- Validating causes – was the “cause” actually present?
- Dealing with uncertainty

Case Study:

- Identify additional data requirements and collection methods for case study example.

Step Seven – Developing Solutions

- Characteristics of good solutions
- How do we identify solutions?
- Eliminating causes
- Minimising effects
- Solution Killers

Case Study:

- Develop solutions for case study example.

Step Eight – Selecting Recommended Solution

- Assessing alternatives

Case Study:

- Develop recommended solution for case study example.

Step Nine – Communicating Findings and Recommendations

- Developing a written report
- Developing a verbal presentation

Case Study:

- Prepare and present brief presentation for case study example.

Step Ten – Implementing Outcomes

- Obtaining approvals
- Tracking implementation progress
- Getting proactive work done in a reactive maintenance environment

Case Study:

- Plan implementation activities for case study example.

Step Eleven – Tracking for Results

- Developing and implementing tracking metrics

Case Study:

- Propose tracking metrics for case study example.

Step Twelve – Institutionalising the Process

- Senior management support
- Policies and procedures
- Consistent process
- Resources
- Tracking Implementation Compliance

Facilitation Skills

- Facilitation Basics
- Planning the RCA Project
- Preparing for RCA workshops
- Conducting RCA workshops
- Implementing the outcomes

Case Studies

- Identify and practice on relevant case studies from your workplace
- Practice facilitation techniques with mentoring from the Assetivity trainer

Course Summary

