

Asset Wisdom Asset Management Certificate Course

The following publications have been listed as recommended and optional reading to ensure the learner of the Asset Management Certificate Course completes the amount of self-learning time recommended by the Institute of Asset Management for those taking the Asset Management Certificate exam.

The reading will also compliment the learning outcomes of the online modules and increase the learner's confidence in passing the Asset Management Certificate exam.

Recommended Reading

Preparation for the AM Certificate Course

| Title | Edition | Publisher | ISBN | |
|--|------------------------|---|-------------------|---|
| Asset Management – An Anatomy 2015 | V3 | Institute of Asset Management | 978-1-908891-00-6 | Download from www.theIAM.org/ |
| Asset Management Landscape | 2nd | Global Forum for Maintenance and Asset Management | 978-0-9871799-2-0 | Download from www.gfmam.org/ |
| Managing Assets in the context of Asset Management | First Edition May 2017 | ISO/TC 251 | N/A | Download from https://committee.iso.org |

Post Course Reading to consolidate learning

| Title | Edition | Publisher | ISBN | |
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| Implementing and Improving a Management System for Asset Management | | Institute of Asset Management | | Download from www.theIAM.org/ |
| AM Maturity Scale and Guidance | | Institute of Asset Management | | Download from www.theIAM.org/ |
| Pathway to Excellence | | Institute of Asset Management | | Download from www.theIAM.org/ |
| ISO 55000 Asset Management — Overview, principles and terminology | | International Organization for Standardization Project Committee ISO/TC 251 | | Available from www.iso.org |
| The IAM regularly update the documents available at www.theIAM.org/ - go to the Knowledge Library to check for updates. | | | | |

Additional optional reading during or after the AM Certificate Course

| Title | Edition | Author | ISBN | |
|---|----------------|---|-------------------|---|
| ISO 55000 Asset Management — Overview, principles and terminology | 2014 | International Organization for Standardization Project Committee ISO/TC 251 | 978-0-580856-24-2 | Available from www.iso.org |
| ISO 55001 Asset Management — Management systems — Requirements | 2014 | International Organization for Standardization Project Committee ISO/TC 251 | 978-0-580856-24-2 | Available from www.iso.org |
| ISO 55002 Asset management — Management systems — Guidelines for the application of ISO 55001 | 2014 | International Organization for Standardization Project Committee ISO/TC 251 | 978-0-580856-24-2 | Available from www.iso.org |
| Asset Management Competency Framework | V 3 | Institute of Asset Management, UK | | Available from www.theIAM.org/ |
| PAS 55:2008, Asset Management – Part 1 - Specification for the optimized management of physical assets. | | British Standards Institution (BSI) | | Available from www.iso.org |
| ISO 31000:2009 Risk management -- Principles and guidelines | | British Standards Institution (BSI) | | Available from www.iso.org |
| ISO 37500 Guidance on outsourcing | | British Standards Institution (BSI) | | Available from www.iso.org |
| ISO/IEC 15288:2008, Systems and software engineering – Systems life cycle processes | | | | |
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| ISO/IEC 19770 – 1:2012 Information technology – Software asset management – Part 1: processes and tiered assessment of conformance | | | | |
| ISO/IEC 31010:2009 Risk management – Risk assessment techniques | | | | |
| International Infrastructure Management Manual, International Infrastructure Management Manual | Version 4.0 2011 | NAMS New Zealand Inc. and the Institute of Public Works Engineering Australia (IPWEA) | 0-473-10685-X | |
| Physical Asset Management Handbook | 4th Edition | John S. Mitchell | 9780985361938 | Available via Reliabilityweb.com |
| Maintenance Work Management Processes (Maintenance Strategy Series) | | Terry Wireman | 9780983225867 | |
| Asset management decision-making: The SALVO process | 2014 | | 978 0 9563934 70 | |
| Managing Maintenance Resources | 2006 | Kelly A. | 13: 978 0 75 066993 1 | Oxford, Butterworth Heinemann |
| Maintenance & Reliability Best Practices | 2nd Edition | Ramesh Gulati | 970831134341 | Industrial Press |
| Leadership and Motivation | 2009 | Adair J | 978 0 7494 54821 | Kogan Paul |
| Practical Financial Management | 2008, 7th | Barrow C | 978 0 7494 52735 | Kogan Page |
| https://theiam.org/developing-and-maintaining-a-strategic-asset-management-plan-samp-revised-pdf/ | | | | |

Glossary of Terms used in the AM Certificate Course

| Abbreviation | Full title | Commentary |
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| ALARP | As low as reasonably practicable | For a residual risk to be described as ALARP, it must be possible to demonstrate that the effort to achieve further risk reduction is grossly disproportionate to the benefit. |
| | Asset | Anything that has a distinct value to the organisation, in this context usually plant, machinery, buildings, vehicles, infrastructure, i.e. physical assets |
| AM | Asset Management | The systematic and coordinated activities and practices through which an organisation optimally and sustainably manages its assets and asset systems..... |
| | AM Information | Meaningful data relating to assets and AM |
| | AM Information System | A system for storage, processing and transmission of AM information |
| | AM Objectives | Specific and measurable outcome or achievement required of asset system in order to implement AM policy and strategy – may apply to assets and/or the management system |
| | AM Performance | Measurable results of an organisations management of its assets and asset systems |
| | AM Plan | Specifies activities, resources, responsibilities and timescales for the delivery of AM strategy and objectives |
| | AM Policy | Principles and mandated requirements for AM derived from the organisational strategic plan – the framework for AM |
| | AM Strategy | Long-term optimised approach to the management of assets, derived from AM policy and organisational strategic plan |
| | AM System | The total of the AM policy, strategy, objectives, plans processes, organisation and enablers necessary for effective AM, |
| | Asset Portfolio | Complete range of assets and asset systems deployed by an organisation |
| | Asset System | A set of assets that deliver a required function or service |
| | Availability | An asset performance measure defined as the percentage of time an asset is actually available to perform its function compared with the total time. $A = \frac{MTBF}{(MTBF+MDT)}$ |

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| | Balanced scorecard | A strategic business management tool that seeks to present financial and non-financial performance data and progress against strategy on a single report. It will typically include sections on finance, customer service, learning and growth, and internal processes, but can be adapted for different requirements. |
| | Bottom-up | Influences on AM that are derived from the condition and performance of the assets or from asset lifecycle interventions. |
| CAPEX | Capital Expenditure | e.g. on procurement and construction of land, buildings, equipment |
| CBM | Condition Based Maintenance | A maintenance approach which requires the condition of assets to be periodically measured with a view to timely planned intervention to prevent catastrophic failure |
| CMMS | Computerised Maintenance Management System | May be stand-alone or part of an enterprise system |
| COTS | Commercial off the shelf | Describes commoditised standard software |
| | Critical assets or asset systems | Assets which have the greatest potential to impact on the organisational strategic plan |
| DCS | Distributed control system | Automation system often in process plants which involves smart instruments communicating digitally over a fieldbus |
| DMS | Document management system | |
| EAC | Equivalent annual cost | Amortized total lifecycle cost of an asset – effectively spreads the cost of ownership including CAPEX and OPEX over the life of the asset as a cost/year. |
| EHS (or SHE) | Environment, health and safety | |
| ESG | Environmental, Social and Governance | A framework used to assess the impact of an organisation's business practices and performance on Environmental, Social and Governance factors. |
| | Enabler | A practice or system that helps to deliver the organisation's plans, but which operates to some extent separately from the core business processes. |
| ETA | Event tree analysis | A form of risk analysis which generates possible outcomes to an asset and their probabilities by synthesis of part level functional successes and failures |

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| FM | Facilities Management | A discipline that includes provision of materials and services to run a particular facility (usually a building). It may include 'soft' FM, such as catering, and 'hard' FM, such as plant maintenance. |
| FMECA | Failure Mode Effect and Criticality Analysis | A technique for identifying, analysing and evaluating risk with a view to selecting interventions to mitigate the risk |
| FTA | Fault tree analysis | A form of risk analysis where an asset functional failure is explained by breaking down the possible causes sequentially to obtain root causes |
| 5 - why | Five whys | A simplified form of root cause analysis |
| 5 Ms | Man, machine, measurement, materials method | A way of sorting possible failure causes on e.g. an Ishikawa diagram |
| GIS | Geographical information system | |
| HAZAN | Hazard analysis | A description of a number of techniques for risk identification and analysis |
| HAZOP | Hazard and operability study | A technique for risk identification where operational and design parameters are challenged against types of variability expressed as key words |
| IAM | The Institute of Asset Management | The IAM is the professional body for those involved in acquisition, operation and care of physical assets, especially critical infrastructure - and particularly for professionals worldwide dedicated to furthering our knowledge and understanding of Asset Management. |
| IRR | Internal Rate of Return | A measure of the profitability of projects, IRR is the discount rate at which the sum of all lifecycle cash flows is zero. |
| ISO | International Standards Organisation | Standards published in IK are prefixed 'BS' |
| (BS ISO 9000) | | Quality Management Systems: fundamental and vocabulary |
| (BS ISO 31000) | | Risk Management principles and guidelines |
| (BS ISO 14000) | | Family of environmental management standards |
| | Ishikawa diagram | Otherwise known as a Fishbone diagram – a failure cause sorting technique |
| KPI | Key performance indicator | A standardised measure of the condition or performance of some aspect of the business |

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| | Life cycle | Of and asset or asset system – identify need + create/acquire + operate + maintain + disposal/replacement/remediation |
| LCC | Life cycle costs | The discounted total costs incurred over the whole lifecycle of an asset |
| | Life cycle costing | The process of evaluating the differences in lifecycle cost of two or more options |
| | Life cycle cost model | The mathematical relationship between lifecycle cost differences and the cost elements |
| | Line of sight | Alignment of AM policy, strategy, objectives, plans and lifecycle activities to the organisational strategic plan |
| (CM) | Maintenance - corrective | Work arising from predictive activities, CBM or RBI |
| (FF) | Maintenance – Failure Finding | Periodic tests to find hidden failures, e.g. of a detection system |
| (PdM) | Maintenance - predictive | A programme of periodic inspections and tests designed to detect incipient failure and to correct the condition. See also CBM, RBI |
| (PM) | Maintenance - preventive | Periodic interventions to change parts that have a time related failure pattern |
| MDT | Mean down time | Mean of all the time the asset is not available for whatever reason |
| MTBF | Mean time between failures | $MTBF = 1/\lambda$ where λ = failure rate (for the constant failure rate case) |
| MTTR | Mean time to repair | Mean time take to repair the asset (usually less than MDT) |
| NPV | Net present value | The sum of all cash flows discounted to the present time $NPV = \sum_{t=0}^N C_t / (1+r)^t$ |
| OHSAS | Occupational Health and Safety Advisory Services | UK publisher of various occupational health and safety standards and guidance |
| OPEX | Operational expenditure | e.g. on materials, energy, labour, parts |
| | Optimise | In this context, to select the best combination of lifecycle cost, asset performance and asset related risk to ensure the organisation's strategic objectives are met. |
| OSP | Organisational Strategic Plan | Overall long term plan for an organisation that includes its vision, mission, values, business and other policies, stakeholder requirements, objectives and management of risk |

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| OEM | Original Equipment Manufacturer | |
| OEE | Overall Equipment Effectiveness | Catch-all measure of asset or asset system performance OEE = availability x % time running at correct rate x % time running at correct quality. The exact make up of the availability, production rate, and quality rate measures varies from sector to sector. |
| | Pareto | Colloquially known as the 80:20 rule, where 80 % of the impact is attributable to 20% of the assets |
| PDCA | Plan–do–check–act | Deming cycle for business processes |
| PESTLE | Political, economic, social, technological, legal, environmental | A structured brainstorming technique |
| PCB | Polychlorinated biphenyls | Also printed circuit board, power circuit breaker, process control block |
| P/E | Price equity ratio | Share price divided by earnings per share |
| PFI | Private Finance Initiative | The introduction of private finance to the assets of public bodies. |
| | Probabilistic cost | The cost of a possible event multiplied by the probability of its occurrence during a particular period, typically a year. |
| PAS | Publically available specification | A standard published by the BSI which specifies, in the case of PAS55 , the key requirements for effective asset management. |
| RCM | Reliability centred maintenance | A technique for systematically identifying appropriate maintenance task and frequencies from an understanding of failure risks |
| RELICS | Reliability, efficiency, life extension, compliance, shine | A mnemonic for the sources of value for a business |
| RACI | Responsible, accountable, consulted, informed | A tool for identifying roles |
| | Risk | The effect of uncertainty on our plans, or the probability of some adverse event occurring multiplied by the severity of its impact |
| RBI | Risk based inspection | CBM applied to (typically) structures or pressure systems |

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| RCA | Root cause analysis | A systematic approach to failure investigation that seeks to find and correct the fundamental or root causes of the event rather than the presenting causes only. |
| | 'Silo' | A metaphor for a department or other interest group in an organisation that pursues its own internal objectives, often at the expense of the objectives of other departments or the organisation as a whole. |
| | Tacit knowledge | The knowledge that is held in individuals' memories and personal records but is not necessarily available to the organisation as a whole. |
| | Top-down | Influences on Asset Management that are ultimately derived from the Organisation Strategic Plan or from decisions of top management. |
| SMART | Specific, measurable, achievable, realistic, timely | Description of the characteristics of good objectives |
| SWOT | Strengths, weaknesses, opportunities, threats | A structured brainstorming technique |
| SCADA | Supervisory control and data acquisition | Computerised control systems |
| | Turnkey | A construction project where the bulk of the specification and design is done by the contractor, who takes most of the risk. The finished facility is sold to the customer as a product; the customer has little input into how it is achieved. |