

IAM Certificate in Asset Management

Ver1.2 January 2013



Introduction

- 1.1 The IAM Certificate is aimed primarily at new entrants and those with some experience in asset management roles and seeking to achieve formal recognition of their knowledge, skills and experience ('workplace competence').
- 1.2 It is anticipated that achievement of the full Certificate will involve approximately 150 hours of notional learning, of which 50% would be expected to be classroom based and 50% personal study. The time requirements will depend upon personal circumstances and the extent to which relevant prior knowledge and experience has been acquired.
- 1.3 Although the IAM Certificate is intended to stand alone, it is designed as part of a progression route to the IAM Diploma, which deals with a wider range of topics in greater depth.
- 1.4 To attain the Certificate, candidates are required to complete successfully a final assessment, which will take the form of a written examination set by the IAM.
- 1.5 The Certificate consists of five Modules (Units), all of which must be gained to be awarded the full qualification. The Module titles are:
 - C1 Introduction to Asset Management
 - C2 Asset-related risk
 - C3 Asset Lifecycle Management
 - C4 Asset information
 - C5 Financial and business impact
- 1.6 The content for these Modules is presented below in terms of subject areas covered for each Module, the references for each subject to the IAM Competence Framework, the IAM Asset Management Anatomy and ISO55000 and the selected component parts from the Competence Framework for each Sub module.
- 1.7 The evidence specifications and indicative references to the IAM Knowledge Centre, Competence Framework and Asset Management Anatomy and to PAS55 and ISO55000 provide the basis on which the IAM will design the final assessment for the IAM Certificate. They also provide ETPs and others with a basis for designing end-of-course and/or continuous assessments for tracking the progress of candidates and determining when they are ready for the final IAM assessment.

Certificate Module C1: Introduction to Asset Management (6 Sub modules)

This Module covers some of the key aspects of asset management as defined in the IAM Competence Framework and the IAM Asset Management Anatomy. The intention is not to require in-depth knowledge and understanding: that is accommodated in the other four Modules in the Certificate. The aim is to provide an overview of what asset management is, its importance to private and public sector organisations and to introduce specific topics such as risk management and information systems. Of particular importance therefore is an awareness of the content of and relationships between PAS55, ISO55000, the IAM Competence Framework and Asset Management - an Anatomy.

Subjects to be covered:

Sub modules	Subject areas	IAM CF references	Evidence specifications, derived from CF content
C1.1	Asset management strategies, policies and plans: how strategies, policies and plans are developed, their importance to the business organisation and the effects of their implementation on day-to-day as well as longer-term operational requirements.	E1.2.4 E2.1.1 E2.3.1 E3.6.5 E3.6.6	<ul style="list-style-type: none"> Contributing to defining the implications of the asset management policy for all stakeholders. Contributing to defining the asset management policy aims and objectives the asset management strategy must achieve and support. Contributing to defining the aims and objectives of the asset management strategy; and what those aims and objectives are. Contributing to developing an asset management plan which describes how asset management activities and projects will be resourced, managed and evaluated. Contributing to defining resources and services required to deliver the asset management plan.
C1.2	Investment issues, whole-life costing.	E3.1.3 E3.2.2	<ul style="list-style-type: none"> The importance of analysing of the costs, risks and benefits of investment options. Whole life costing models: what they are, what they do, how they are used.

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Sub modules	Subject areas	IAM CF references	Evidence specifications, derived from CF content
C1.3	Operation, maintenance, repair and disposal of assets.	E4.1.3 E4.1.5 E4.2.1 E4.3.1 E4.4.3	<ul style="list-style-type: none"> • The need to develop operations work and resource plans; and how such plans are produced. • Delivery of workplans including managing change and the impact of unplanned work. • The requirement to review and update existing maintenance and/or refurbishment strategies. • Reviewing asset performance and capacity against current requirements to identify proposals for rationalisation. • Implementation of life-extending, decommissioning, disposal and risk control actions.
C1.4	Risk management.	E6.1.2 E6.1.3 E6.4.1	<ul style="list-style-type: none"> • Identification and assessment of risks arising from asset management activities. • Specifying measures and methods for controlling identified risks. • Identification and monitoring of relevant legal, regulatory, ethical and social requirements.
C1.5	Information needs and systems.	E7.2.1 E7.2.4	<ul style="list-style-type: none"> • Specifying and validating functional and technical requirements of information systems needed to support and integrate asset management processes. • Demonstration of appropriate use of information systems in supporting the delivery of asset management strategy and plan(s).

Module C1: related IAM Knowledge Centre, Asset Management Anatomy and ISO55000 specifications

IAM Knowledge Centre

KC #1 Strategy and Planning

- Asset Management Policy
- Asset Management Strategy
- Strategic Planning
- Asset Management Plans

KC #2 Asset Management Decision-Making

- Capital Investment Decision Making
- Operations and Maintenance Decision-Making
- Resourcing Strategy and Optimization
- Shutdowns and Outage Strategy and Optimization
- Ageing Assets Strategy

KC #3 Lifecycle Delivery Activities

- Lifecycle Delivery Activities
- Asset Creation and Acquisition
- Configuration Management
- Maintenance Management
- Reliability Engineering
- Shutdown/Outage Management
- Asset Rationalization and Disposal

KC #4 Asset Knowledge Enablers

- Asset Information Strategy
- Asset Knowledge Standards
- Asset Information Systems
- Asset Data and Knowledge

KC #6 Risk and Review

- Criticality, Risk Assessment and Management
- Contingency Planning and Resilience Analysis
- Sustainable Development
- Weather and Climate Change
- Assets and Systems Performance and Health Monitoring
- Assets and Systems Change Management
- Management Review, Audit and Assurance
- Accounting Practices

continued on next page...

Module C1: related IAM Knowledge Centre, Asset Management Anatomy and ISO55000 specifications

Asset Management - an Anatomy

Indicative mapping to PAS55 and ISO55000 (current version)

Chapters:

- 2 What does 'Asset Management' mean?
- 3 Concepts and principles
- 4 The scope of asset management
- 5.1 Asset management strategy and planning
- 5.2 Asset management decision-making
- 5.3 Lifecycle delivery activities
- 5.4 Asset knowledge enablers
- 5.5 Organisation and people enablers
- 5.6 Risk and review

PAS55

- 4.1
- 4.2
- 4.3
- 4.4
- 4.5
- 4.6
- 4.7

ISO55000

- Maps to ISO55000 Sections 4, 5, 6, 7, 8, 9 and 10

Module C2: Asset-Related Risk (2 Sub modules)

This Module deals with the anticipation, measurement and management of risk with regard to assets. It includes consideration of risk assessment and management, quality assurance, performance, monitoring and evolution of asset management systems, considerations of risk as function of cost-benefit analysis, compliance and audits, including regulatory and statutory requirements and the need for feedback and continuous improvement.

Sub modules	Subject areas	IAM CF references	Evidence specifications, derived from CF content
C2.1	Assessment and management of risk.	E3.5.1 E6.1.1 E6.1.2 E6.1.3 E6.1.4 E6.1.5 E6.1.6	<ul style="list-style-type: none"> Identifying asset-related risks. Implementing risk management processes and procedures. Identifying and assessing risks arising from asset management activities and specify measures and methods for controlling identified risks. Identifying improvements needed to working practices and procedures and monitor the progress and impact of implemented improvements. Assisting with integration of asset management-related risk management with organisational risk management systems.
C2.2	Contingency planning.	E3.5.2 E3.5.3 E3.5.4	<ul style="list-style-type: none"> Identifying potential disruptions to critical asset management activities. Planning appropriate responses to incidents and emergencies. Ensuring that suitable resources are available to respond to incidents and emergencies, as planned.
C2.3	Asset management review	E4.1.6 E4.1.7 E4.1.8 E4.1.9 E4.2.6	<ul style="list-style-type: none"> Monitoring performance of assets and systems Involvement with change management of assets and systems Involvement with general management reviews, audits and assurance procedures Determining asset management key performance indicators Involvement with asset management stewardship reporting Condition monitoring of assets and systems

Sub module C2.3: evidence requirements, derived from Unit ECIMP SM8.07, National Occupational Standards Database.

- Health and safety legislation, regulations and working practices and procedures including local, national and international legislative requirements, permits to work and method statements
- Performance requirements of physical assets, including manufacturer and installer specifications
- Performance-monitoring methods and procedures such as trends analysis, researching historical data, analysis and review of outputs, investigating abnormal characteristics
- Documentation and control procedures, including compliance with company and other policies and specifications

Module C2: related IAM Knowledge Centre, Asset Management Anatomy and ISO55000 specifications

IAM Knowledge Centre

KC #6 Risk and Review

- Criticality, Risk Assessment and Management
- Contingency Planning and Resilience Analysis
- Sustainable Development
- Weather and Climate Change
- Assets and Systems Performance and Health Monitoring
- Assets and Systems Change Management
- Management Review, Audit and Assurance
- Accounting Practices

Asset Management - an Anatomy

Chapter: 5.6 Risk and review

- Criticality, risk assessment and management
- Contingency planning and resilience analysis
- Sustainable development
- Weather and climate change
- Assets and systems change management
- Assets and systems performance and health monitoring
- Management review, audit and assurance
- Accounting practices
- Stakeholder relations

Indicative mapping to PAS55 and ISO55000 (current version)

PAS55

- 4.3.4
- 4.4.7.1
- 4.4.7.2
- 4.4.7.3
- 4.4.7.4

ISO55000

- Maps to ISO55000 section 6.1

Module C3: Asset Lifecycle Management (4 Sub modules)

This Module is concerned with defining the lifecycle and consideration of all aspects, from specification and acquisition and installation to decommissioning and disposal. It covers internal and external factors influencing lifecycle and the impact and requirements of different types of business.

Sub modules	Subject areas	IAM CF references	Evidence specifications, derived from CF content
C3.1	Creation and acquisition of assets: <ul style="list-style-type: none"> • developing design specifications to achieve optimum customer, business and lifecycle requirements • installation and commissioning of assets 	E3.3.1 E3.4.1 E3.4.2 E3.4.3 E3.4.4 E3.4.5 E7.3.2	<ul style="list-style-type: none"> • Establishing requirements for assets according to asset management strategy and plans. • Developing specifications for acquisition and installation of assets, including requirements for necessary resources • Establishing identity of the client for the assets and identifying all other stakeholders • Obtaining and interpreting accurate relevant information from the clients. • Confirming client requirements and their feasibility. • Ensuring design specifications are practicable and achievable. • Ensuring that assets are acquired or created according to specifications and budgetary and timetable constraints. • Ensuring that assets are installed correctly in accordance with specifications. • Undertaking commissioning of assets as appropriate and, where required, transfer control of assets. • Producing and storing records of all relevant information and decisions

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Sub modules	Subject areas	IAM CF references	Evidence specifications, derived from CF content
C3.2	Creation and acquisition of assets: <ul style="list-style-type: none"> • impact of procurement policies on achieving optimum asset lifecycle performance and costs 	E3.3.7	<ul style="list-style-type: none"> • Contributing to identification of feasible and realistic procurement objectives and criteria. • Identification and evaluation of procurement methods for achieving best value for money. • Selection and evaluation of procurement methods which meet stakeholder constraints and relevant legislative and regulatory obligations. • Determining preferred or imposed terms and conditions of procurement and sources. • Involvement with tendering processes, bid evaluations and contract negotiations. • Monitoring performance of suppliers and contractors.
C3.3	Maintenance of assets.	E4.2.2 E4.2.3 E4.2.4 E4.2.5 E4.2.6 E4.2.7	<ul style="list-style-type: none"> • Developing risk-based maintenance and/or refurbishment work-plans, specify requirements for management of spares and inventory and plan the distribution of spares and supplies • Identifying appropriate condition assessment techniques and assess condition and performance of assets and modify maintenance plans and regimes as required. • Providing input on options for extending the life of assets.
C3.4	Renewal and disposal of assets.	E4.4.2 E4.4.3 E4.4.4 E4.4.5	<ul style="list-style-type: none"> • Identifying and plan life-extending, decommissioning, disposal and risk control actions. Implementing action to achieve life-extension, decommissioning, disposal and risk control of assets and evaluate the effectiveness of such action. • Ensuring that assets are disposed of responsibly and ethically and in accordance with accepted good environmental practice and relevant legislation.

Sub module C3.2: evidence specifications, derived from OSCEng Higher Level Standards (V2.0, 1999)

- Installation principles and processes
- Organisational principles and processes
- Project planning and management
- Relevant national and international legislative and regulatory frameworks
- Resources management
- Commissioning processes
- Evaluation methods
- Reporting documentation and control procedures, including compliance with company and other policies and specifications

Module C3: related IAM Knowledge Centre, Asset Management Anatomy and ISO55000 specifications

IAM Knowledge Centre

KC #3 Lifecycle Delivery Activities

- Lifecycle Delivery Activities
- Asset Creation and Acquisition
- Configuration Management
- Maintenance Management
- Reliability Engineering
- Shutdown/Outage Management
- Asset Rationalization and Disposal

Asset Management - an Anatomy

Chapter: 5.3 Lifecycle delivery activities

- Technical standards and legislation
- Asset creation
- Systems engineering
- Configuration management
- Maintenance delivery
- Reliability engineering and root cause analysis
- Asset operations
- Resource management
- Shutdown and outage management
- Incident response
- Asset rationalisation and disposal

Indicative mapping to PAS55 and ISO55000 (current version)

PAS55

- 4.5.1
- 4.5.2
- 4.6.1

ISO55000

- Maps to ISO55000 sections 5.3 and 9.1

Module C4: Asset Information (3 Sub modules)

This Module is concerned with asset knowledge systems and procedures, the use of IT as an asset management tool, selection and use of appropriate systems and procedures and data collection, dissemination, storage and maintenance.

Sub modules	Subject areas	IAM CF references	Evidence specifications, derived from CF content
C4.1	Asset information requirements.	E7.1.2 E7.1.3 E7.1.4 E7.1.7	<ul style="list-style-type: none"> • Contributing to the definition of asset condition standards and measures, including definitions of asset defects and failures and standards for asset performance management.
C4.2	Specification and use of asset information systems.	E7.2.4 E7.2.5 E7.2.6	<ul style="list-style-type: none"> • Demonstrating appropriate use of information systems. • Ensuring asset management information systems produce relevant, usable and accurate data. • Monitoring the use of information systems and tools.
C4.3	Using asset management information.	E7.3.2 E7.3.3 E7.3.4 E7.3.5	<ul style="list-style-type: none"> • Planning and managing the collection, maintenance and updating, storage and dissemination of asset management information. • Processing and analysing data to provide effective business information, as required. • Preparing reports as required and recognise and identify anomalies in reported data. • Providing asset management data and information necessary for the transfer of assets into operational use.

Module C4: related IAM Knowledge Centre, Asset Management Anatomy and ISO55000 specifications

IAM Knowledge Centre

KC #4 Asset Knowledge Enablers

- Asset Information Strategy
- Asset Knowledge Standards
- Asset Information Systems
- Asset Data and Knowledge

Asset Management - an Anatomy

Chapter: 5.4 Asset knowledge enablers

- Asset information strategy
- Asset knowledge standards
- Asset information systems
- Asset data and knowledge

Indicative mapping to PAS55 and ISO55000 (current version)

PAS55

- 4.4.5
- 4.4.6

ISO55000

- Maps to ISO55000 section 7.5 *et seq*

Certificate Module C5: Financial and Business Impact (3 Sub modules)

This Module deals with quantification of the financial and business impact of asset management and includes issues such as making informed decisions about asset management and investments, and the need for such decisions; and analysing business needs with regard to asset acquisition or development and the attendant risks, costs and benefits.

Sub module	Subject areas	IAM CF references	Evidence specifications, derived from CF content
C5.1	Strategic requirements.	E2.1.2 E2.1.4 E2.1.5 E2.1.6 E6.4.1	<ul style="list-style-type: none"> • Identifying risks to be considered within the asset management strategy and the implications of current and forecast condition of assets. • Supporting the analysis of current and future customer requirements to be considered within the asset management strategy. • Contributing to considerations of the legal, social, environmental and economic factors and trends relevant to the asset management strategy.
C5.2	Investment decision-making.	E3.1.2 E3.1.3	<ul style="list-style-type: none"> • Identifying investment options for achieving the asset management strategy and asset management objectives. • Contributing to analysis of the costs, risks and benefits of investment options.
C5.3	Asset management planning	E3.6.5 E3.6.6	<ul style="list-style-type: none"> • Developing an asset management plan which describes how asset management activities and projects will be resourced, managed and evaluated • Defining resources and services required to deliver the asset management plan
C5.4	Creation and acquisition of assets: the business case	E3.3.1 E3.3.3 E3.3.5	<ul style="list-style-type: none"> • Contributing to the analysis of business needs regarding the creation and/or acquisition of assets based on requirements of asset management strategy and plan • Assessing the costs, risks and benefits of competing asset creation and/or acquisition options. • Contributing to preparation of business cases which evaluate costs, benefits and risks of proposed solutions.

Module C5: related IAM Knowledge Centre, Asset Management Anatomy and ISO55000 specifications

IAM Knowledge Centre

Asset Management - an Anatomy

Indicative mapping to PAS55 and ISO55000 (current version)

Chapters:

KC #1 Strategy and Planning

- Asset Management Policy
- Asset Management Strategy
- Strategic Planning
- Asset Management Plans

5.1 Asset management strategy and planning

- Asset management policy
- Asset management strategy
- Demand analysis
- Strategic planning
- Asset management plans

PAS55

- 4.3.1
- 4.3.2
- 4.3.3

ISO55000

- Maps to ISO55000 sections 4, 6 and 9

KC #2 Asset Management Decision-Making

- Capital Investment Decision Making
- Operations and Maintenance Decision-Making
- Resourcing Strategy and Optimization
- Shutdowns and Outage Strategy and Optimization
- Ageing Assets Strategy

5.2 Asset management decision making

- Capital investment decision-making
- Operations and maintenance decision-making
- Lifecycle cost and value optimisation
- Resourcing strategy and optimisation
- Shutdown and outage strategy and optimisation
- Ageing assets strategy

Modules: Generic Knowledge and Understanding Requirements (from IAM Competence Framework)

1 Policy Development: applies to Certificate Module 1

- The organisation's strategic plan
- The organisation's risk management framework
- Relevant other organisational policies and strategies
- Legislative and regulatory frameworks
- How to: Develop policy options, compare and assess their benefits and impacts.
- Policy decision criteria and development processes
- Relevant developments in the business environment and the changes these cause in stakeholder expectations
- Stakeholder management and consultation processes
- The impact of changing economic/stakeholder expectations on the long term management of assets

2 Strategy Development: applies to Certificate Modules 1 and 5

- The organisation's strategic plan
- Relevant other organisational policies and strategies
- Legislative and regulatory frameworks
- How organisational AM strategies support business goals
- AM strategies and how these are reflected in AM objectives and plans
- The inter-relationship of business and AM processes.
- Content and applicability of relevant business excellence models
- The strengths and weakness of relevant business process excellence models
- Identification of appropriate metrics for analysis and interpretation of information to track the business benefits of AM Strategies
- How to develop strategic options and compare and assess their benefits and impacts
- Competitor analysis methods and techniques
- Relevant developments in the business environment and the changes these cause in stakeholder expectations
- Market analysis, econometric modelling,
- Managing working capital

- Cashflow forecasting
- Asset condition assessment and degradation modelling
- Cost forecasting, budget preparation and management
- Commonly used accountancy terms and conventions
- Benefit tracking and the selection and use of appropriate methods
- Stakeholder management and consultation processes
- The effect of stakeholder expectations on AM plans
- The impact of changing economic/stakeholder expectations on the day-to-day management of assets
- The impact of changing economic/stakeholder expectations on the long term management of assets
- Organisational stakeholders, their interfaces and how their requirements are reflected in the organisation's strategic plan and business goals
- Environmental management standards and excellence models
- Sustainability principles and the application of sustainable development excellence models
- The implications of severe weather and climate change

3 Asset Management Planning: applies to Modules 1, 2, 3, 5

- Investment appraisal and optimisation techniques
- Value-for-money criteria and financial evaluation methods
- Optioneering tools, methods and techniques for reviewing options and their impact on integrated system effectiveness
- The complexity, impacts and priorities of critical projects and multiple projects
- Project management principles and the importance of operating to cost, quality and time obligations
- Relevant internal and external communications process and procedures
- Incident and emergency response and recovery standards and procedures
- Cost and performance analysis methods and techniques
- Materials, logistics and supply chain management
- Resource planning
- Design and use of KPIs and balanced scorecard techniques
- Principles and methods of strategic management and business planning
- Communicating plans to people effectively
- How to monitor and review implementation of and performance against the plan
- The importance of identifying ways in which future planning can be improved
- Procurement strategies applicable to the acquisition/creation of assets

4 Implement Asset Management Plans: applies to Modules 1, 2, 3

- Project planning and management
- Resource management
- Materials, logistics and supply chain management
- Procurement strategies
- Maintenance principles, techniques and processes
- Maintenance regime options
- Accident Investigation principles and procedures
- Decommissioning processes
- Calculation and management of residual risk and liabilities

5 Risk Management and Performance Improvement: applies to Modules 1, 2, 3, 5

- Risk assessment processes and methods covering health and safety, security, asset availability, reputation, environmental and financial
- Interrelationship of corporate, strategic and asset-specific risk management
- Types of risk and the factors which drive different types of risk
- Key stages in the risk management process
- Identification of risks relating to current and planned activities, the nature of the risks, the probability of occurrence and consequences
- Risk management processes appropriate to the assets being managed
- Impact of improvement actions on current operations and assessment of related risk
- Quantification of probabilities and consequences and prioritisation of risks for appropriate analysis and control
- Why it is important and how to communicate information on identified risks to relevant people across the organisation and other stakeholders as appropriate
- How to establish effective systems for monitoring risk management processes
- Legislative and regulatory frameworks
- Health, safety and environmental procedures and issues
- Quality Assurance principles and Quality Management systems
- Patents, copyright and intellectual property issues
- Stakeholder management and consultation processes
- The effect of stakeholder expectations on asset management plans
- The impact of changing economic/stakeholder expectations on the day-to-day and long term management of assets
- Organisational stakeholders, their interfaces and how their requirements are reflected in the AM Strategy
- The importance of having an ethical and value based approach to governance and how to put this into practice
- Current and emerging social attitudes to management and leadership practice and the importance of being sensitive to these
- Current and emerging social concerns and expectations that are relevant to your sector
- Ways in which other organisations deal with current and emerging social and environmental concerns and expectations

6 Asset Knowledge Management: applies to Modules 1 and 4

- 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
- The processes and organisation required to manage documentary information collection, maintenance and updating, storage and dissemination
- 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, processes and performance indicators needed to provide management reports on operations and maintenance
- The integration of asset and technical information

Copyright information		
The IAM copyright notice displayed in this document indicates the date of last revision and issue		
Amendment number	Date	Comments
Version 1.2	January 2013	Correction of formatting, typographical errors and terminology ('Elements' changes to 'Sub-modules' for consistency with other IAM and external documentation)