Certified Executive in Asset Management (CEAM)

This document specifies the requirements for PEMAC's "Certified Executive in Asset Management". PEMAC CEAM certification has been accredited by the World Partners in Asset Management (WPiAM) www.wpiam.com which means that when you are assessed as having met the requirements for CEAM Certification by PEMAC your certification will be recognized globally where CEAM, and its equivalents are recognized.

In the specification elements below, where bold italicised text is used, further information is detailed in the "Range Statement" section of the document.

Certification Level	**Certified Executive in Asset Management (CEAM)**
Certification Level Descriptor	The knowledge and skills to provide executive leadership and accountability in a **top management** (including governance **activities**) role for establishing, improving and oversight of effective and efficient application and integration of the **Asset Management System (AMS)** into the organisation's broader system of governance and management in a significant area of a business managing a significant asset portfolio, requiring: • Awareness and understanding of all the recognised **Domains** of Asset Management (AM), their inter-dependency, and integration. • Awareness and understanding of the key requirements for an integrated Asset Management Framework (AMF). • The ability to synthesise and integrate complex knowledge and application of AM **Domains** (including eliciting such knowledge from a range of **Domain** and AM experts). • ***Meta-cognitive skills.*** • Governance, Leadership and management skills. • The ability to communicate complex knowledge to a variety of audiences; • The ability to ensure the integration of the AM Policy and Strategic direction with the overall organizational strategic goals, objectives and direction; and

- The ability to lead the integration and manage the relationship of AM systems and processes with other organizational management systems and processes.

No licensing, legislative, or regulatory requirements apply to this certification at the time of publication.

Application of the Certification

This certification is applicable to Executive / **Top Management** (or expert advisors thereto) responsible for the governance and/or executive leadership for effective and efficient establishment, updating and management oversight of the application of a holistic and integrated **asset management system (AMS)** across a significant area of the organization's asset related business, informed by the organization's strategic objectives. This could also be applicable to Practitioners responsible for contextualising and advising the organisation with respect to strategic and tactical AM decisions.

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a certificant for this competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.
1 Demonstrated awareness, understanding and benefits of asset management (AM) and general application of an Asset Management Framework (AMF)	1.1 Demonstrated awareness and understanding of why the organization is implementing asset management: • Benefits of an (ISO55000 compliant) AMF. • Government or regulatory guidelines. • Benefits of Asset Management. 1.2 Demonstrated awareness and understanding of organizational strategic objectives and integration with the: • Asset Management policy. • Asset Management objectives (Vertical and Horizontal Alignment). • Stakeholder requirements.

- Operating context, environment, opportunities and constraints.

1.3 Awareness and understanding of Asset Management principles & outcomes:
- Value,
- Alignment,
- Leadership,
- Assurance,
- Adaptability,
- Sustainability.

1.4 Awareness and understanding of the organizational structure and culture and how these relate to the generic AM principles

1.5 Awareness and understanding of departmental business functions and individual roles within the AMF and linkages to the elements of the GFMAM Landscape v3 with respect to:
- Coordinated activity,
- The impact of their activity,
- Communication,
- Data and information,
- Assurance,
- Value generation,
- Continual improvement
- Governance,
- Culture.

1.6 Awareness and understanding of impact on risk management:
- Risk and opportunity.
- How people and organizational competency and culture influences asset risk management.
- Risks that assets pose to people and the organization.
- Implication of non-conformance (- what could go
- wrong?).

2	Conduct strategic planning and acquisition of asset dependent capability	2.1	Understand and apply the fundamentals of strategic demand planning
		2.2	Understand the fundamentals of capability identification, improvement planning and delivery, and change management.
		2.3	Applying capability planning and delivery principles/ fundamentals
		2.4	Ability to ensure integration of AM that will align with the needs required over the asset lifecycle
		2.5	Ability to specify inter-dependency of the organisation's systems required for managing assets over the respective asset lifecycle
3	Apply systems thinking to asset management	3.1	Understand the fundamentals and application of systems thinking in asset management
		3.2	Implementing asset management as part of an integrated systems approach to organizational management.
		3.3	Apply systems thinking to asset management decision making
		3.4	Apply systems thinking to lifecycle delivery processes and practices
4	Apply financial and economic principles in asset management	4.1	Applying sound financial management principles in an asset managed environment Demonstrate understanding of the financial, economic, social and environmental (such as ESG or Six Capitals) impact of potential internal and external opportunities and constraints on organizational operations within an asset managed environment.
		4.2	Understanding of the risks and impacts of macro-economic, micro-economic, and legislative requirements and uncertainty on asset management decision making over the asset lifecycle
		4.3	Ability to assure and validate financial and economic plans in asset dependant organization

		4.4	Ability to interpret and analyse the financial, economic, social, environmental and governance aspects of managing assets in setting strategic direction and setting of organizational objectives
		4.5	Understanding the relationship of asset management to funding and financing of organizational activity throughout the asset lifecycle. Consideration of both long-term and short-term time horizons including asset retirement obligations.
5	Provide leadership in asset management	5.1	Establish and lead the integration of the asset management functions and **domains** with other organizational functions to achieve and enhance overall organizational value
		5.2	Understand asset management governance, risk management and legislative compliance
		5.3	Craft and secure organisational adoption of strategic asset management goals and objectives
		5.4	Enable capability required to provide and sustain AM resource needs of the organization
		5.5	Set expectations for related asset management competence and commitment
		5.6	Match leadership approach to the management of assets and the Asset Management System
		5.7	Establish organizational structure, design and performance assessment framework for asset management;
		5.8	Aligning culture and behaviour of internal and external stakeholders across the organisation who are relevant to asset management.
		5.9	Managing responses and generation of disruptive and unexpected technologies, events, paradigms and operating environments.
		5.10	Providing leadership in assurance, oversight and validation of interpretation and consequential impact of the external environment in decision making

REQUIRED SKILLS AND KNOWLEDGE

Required skills:

Demonstrated successful application, in a **top management** (including governance **activities**) role, SME or roles relating to a significant asset portfolio (in terms of its nature, size, and risk exposure), of the following competencies, in line with recognised good practice:

- Provide leadership in driving organisational AM competence and performance.
- Align and integrate Asset Management with other organizational functions.
- Lead integration and organisational adoption of the development, review, and updates of:
  - AM Policy,
  - Strategic Asset Management Plan (SAMP),
  - AM Plans (AMPs), and
  - AMF,

  and assure and validate their implementation.
- Oversee integration of AM risk management within the organization.
- Oversee integration of AM related opportunity management within the organisation.

Ability to:

- Address infrequently encountered issues and problems, outside those encompassed by standards and codes of practice for professional asset management.
- Engage with wide ranging asset management issues and resolution of significant problems arising from interactions between such issues, including interaction with both internal and external stakeholders and other asset management disciplines.
- Integrate all functional elements to form a complete and consistent management system; and
- Conceptualise alternative approaches, comprehend and define the risks and benefits of each, use informed professional judgement.

Required knowledge:

1. A minimum qualification in a **Domain** discipline equivalent to a Bachelor degree related to the role (or recognised knowledge developed in the workplace).
2. A minimum post-graduate university or recognised advanced training provider qualification that has meaningful and relevant content in providing executive leadership and accountability in a **top management** (including governance **activities**) role that can be applied to Asset Management and where the specific elements and performance criteria specified above are at a level equivalent to a Masters (see

footnote[1] below) and meet the following level of cognition (thinking, learning, and understanding, based on the 2001 revised version of Bloom's Taxonomy):

a. Cognitive dimension: analysing.
b. Knowledge dimension: ***Metacognitive***; and
c. Matrix activity: order, explain, differentiate, achieve, classify, experiment, calculate, summarise, and interpret.

3. Sufficient experience to acquire contextualised knowledge in the application of knowledge to AM **activities** (see Required experience below).

Note 1: While the qualifications referenced in 1. and 2. above are explicitly noted as being formal qualifications, it is possible, on an exception basis, that a lower level base qualification together with appropriate progressive leadership and asset management **domain** work experience may be assessed to be equivalent.

Note 2: Qualifications not formally recognized as a Master degree in Asset Management may need to be assessed for compliance by WPiAM.

Note 3: While most post-graduate qualifications at the Master level will meet the requirement noted in 2. above, some Master qualifications are structured in a nested format with 'lower level' exit points.

For example, if a Master qualification was made up of 12 Units or Modules, but 4 or 8 Units addressed the specific Elements and Performance Criteria noted above, someone departing with just these 4 Units could be awarded a Graduate Certificate or 8 Units at a Graduate Diploma level.

Required experience:

A minimum of ten (10) years' experience in an asset-intensive or asset-dependant environment including demonstrated effective **top management** leadership (including governance). Depending on a professional's roles and responsibilities in AM over their working life, and the scale, complexity and criticality of the organization(s) **Activities** and the respective asset base, the time needed to build a portfolio of demonstrated successful application of asset management practice may require additional time, i.e. time served needs to be contextualised by varied application in a blended combination of the underpinning discipline and broader asset management practice.

NOTE: this requirement includes that the applicant is to demonstrate recent successful workplace application (in line with the CPD measure for knowledge and skills being current within the past three (3) years).

RANGE STATEMENT

The Range Statement relates to the certification level competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Domain-subject equivalence	In the Global Certification Scheme, a '**Domain**' is considered equivalent to the reference to 'subject' (or group of subjects) in the Global Forum for Maintenance and Asset Management (GFMAM) Landscape. **Domain** may also refer to the tactical AM of specific asset types or classes, critical assets, or spatially discrete asset groupings such as facilities, networks, or process lines.
Reporting Obligations include:	Risk, financial and performance management, and are in line with the organisation's **AM Processes and Procedures**, corporate and legislative governance and reporting, and meeting organizational strategic obligations and objectives.
Financial Management Aspects include:	Budgeting and prioritisation, asset accounting, funding strategy, cost management, revenue optimisation, cost/benefit analysis, Net Present Value (NPV) assessment, Rate of Return (RoR) determination, public sector or regulatory pricing setting incorporating and/or level of service (LOS) (ie. stakeholder value) determination and similar techniques.
AM Processes and Procedures are:	The integrated financial, risk and performance management models and techniques, operational management processes; lifecycle and data management models; roles and responsibilities; risk evaluation and mitigation; formats and support systems adopted by the organization to give effect to its AM Policy, AM Objectives, SAMP and AMPs.
AMS Practices, Processes and Artefacts include:	Practices, processes and artefacts, including the **AM processes and procedures**, that collectively constitute or are needed for implementation of the Asset

Management System. **AMS practices, processes and artefacts** may be discrete or an AM construct, but also may be evident from drawing relevant parts of other organizational Management Systems, documents, processes, practices, and artefacts into an aggregated equivalent. For example, the document management system tool may be part of, and managed through, the ISO 9001 Management System, but the AM/AMS documents are stored and managed through this 'common' tool.

Activities comprise:

The oversight and control of the application of tools, processes and practices utilised by an organization to manage or make decisions with respect to:

- Budgeting and prioritisation.
- Organizational strategy and context.
- Integration of asset management decisions and outcomes with holistic organizational practices and decisions.
- Legislative requirements.
- Risk, performance, and financial management.
- Asset performance, capacity, utilisation, and criticality.
- Asset availability, reliability, maintainability, and supportability.
- Asset acquisition, creation, operations, maintenance, and disposal.
- Environmental and social impacts.
- Safety and health
- Economics - cost, affordability, level of service delivery and ability to pay determinations.
- Asset value, condition, retirement and replacement and depreciation.
- AMS performance.
- Workplace resourcing, competency, and culture,
- Alternative technologies.

Meta-cognitive skills are:

The ability to 'think about thinking'. In this context, demonstrated application of **meta-cognitive** skills is about organisational metacognition – understanding and then managing in response to how and why the

	organisation thinks and acts in particular ways or follows particular processes and practices. Evaluation and selection of the most appropriate processes and practices as a learning organisation, developing and maintaining an appropriate culture, performance management, driving appropriate changes to the operating environment and determining appropriate methodologies, processes and practices for setting objectives, implementation, review, analysis and decision making constitute aspects of **meta-cognitive** thinking.
Top Management includes:	a person or group of people who direct and control an organization at the highest level and have the power to delegate authority and provide resources within the organization, and also includes those with a governance role, i.e. the exercise and control of the framework of rules, relationships, systems and processes within and by which authority is exercised and controlled in organizations

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, and the Range Statement.

Critical aspects for assessment and evidence required to demonstrate competency include:	Evidence of the following is essential: • Summarised overview of the nature and duration of total work experience (minimum of 10 years in an asset intensive or dependant environment). *Note: Depending on an Asset Management professional's roles and responsibilities over their working life, and the scale and complexity of the organization(s) and the asset base (and asset criticality), the time needed to build a portfolio of demonstrated successful application of Asset Management practice may require additional time (for example 10-12 + years for CEAM) i.e. time served needs to be contextualised by application in a blended*

combination of underpinning discipline and broader Asset Management practice;

- Summarised overview of the nature, dates, and duration of AM work experience, including the nature, size and criticality of the asset portfolio, and respective AM roles.
- Corroboration/assurance of the qualifications, experience and contribution / role of the applicant by a recognised professional, appropriate manager or accountable person, in the relevant organisation.
- Submission of key artefacts to support the competency application with appropriate referencing against the assessment criteria, for example: oversight and organisation's adoption of the establishment / review of the AM Policy; preparation of a SAMP, AM Plan and **AM Processes and Procedures**, performance plan and compliance reports; AM practices assessment and improvement plan.
- Commitment to the Code of Ethics.
- Evidence of verified ***Domain*** qualification and/or experience at a Bachelor degree level or above. *Note: Obtaining a recognised formal qualification is one pathway to acquisition of knowledge (and in the case of vocational training, also skills), though WPiAM recognises that a lower level base qualification plus appropriate experience can equate to a higher-level qualification*
- Evidence of a formal qualification at a post graduate level that has meaningful and relevant content at an executive leadership and accountability level in an Executive or **Top Management** role (including governance **activities**), that can be applied to Asset Management at a level equivalent to a Master's or advanced qualifications plus experience and demonstration of application

	to AM **activities** at a post graduate level in performing the role. Note: 1) Required experience is in the **top management** oversight of the preparation of the AM Framework documents requiring approval of the organisation - AM Policy, Strategy, Plans, budgets, resource plans, AM maturity development, stakeholder engagement. Note 2) For SMALL organizations, a targeted AAMC-level course could suffice to facilitate appropriate asset management performance within another existing corporate management role (ie not CEAM) or this AM leadership role could be performed by a CSAM. The CEAM is intended for application at large organisations and / or with complex asset portfolios. In such scenarios, relevant Continuous Professional Development (CPD) will be essential, to ensure the AMF is measured, fit-for-purpose, and is appropriate asset management leadership practice. Note 3) AAMC can be applied as a stand-alone option if considered sufficient by an organisation. But not sufficient to warrant a separate designation, with ongoing CPD, and transferability.
Context of and specific resources for assessment:	Assessment must ensure access to evidence of the nature, scale and criticality of the asset portfolio.
Method of assessment:	A range of assessment methods are used to assess practical skills and knowledge. The following are appropriate to this designation: • Review of artefacts submitted by the applicant, supported by a declaration by the applicant and reference(s) to confirm the specific role and relevant work experience of the applicant in determining, proving, and documenting the approach relevant to the application. • Review of the applicant's response to queries / clarifications requested by the assessors; and • Interview Mandatory at this level of Global Certification Scheme.

	• Interviewers or assessors must be of sufficient or equivalent recognized status.
Guidance information for assessment:	Holistic assessment with relevant to the industry sector, workplace and job role is recommended. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Assessment processes and techniques must be appropriate to the language and literacy capacity of the candidate and the work being performed. Where the applicant was part of a team that performed the actions relating to submitted evidence, their role must be clearly defined and may require confirmation from the workplace and interview by the assessor or other validation to demonstrate knowledge and ability. Applicants may be operating within a mature AMS environment or in a formative phase. The organizational maturity within which the applicant is operating will inevitably impact on the way an applicant has undertaken their **activities** and hence evidence presented and therefore needs to be taken in to account, however, it is the applicant's competence that is being assessed, not the organization's maturity.