

The Academy for Professional Education and Training

In Association with the Cooperative Research Centre for Integrated Engineering Asset Management (CIEAM)

Programme of Workshops and Courses

Professional Training in Integrated Engineering Asset Management

Presented by

**The Cooperative Research Centre for
Integrated Engineering Asset Management**



**Queensland University of Technology
Queensland, Australia**

Professional Training in Integrated Engineering Asset Management

Integrated Asset Management and more specifically Integrated Engineering Asset Management, is a systematic, structured process covering the whole life of physical assets whereby the underlying assumption is that assets exist to support the organisation's delivery strategies, and requires a certain level of management insight and expertise from diverse organisational disciplines.

The principal objective of Integrated Asset Management is to achieve the best possible match of assets with an organisation's delivery strategies. Corporate objectives are translated into delivery strategies, outputs and outcomes. These delivery strategies thus combine with information systems, personnel, and financial resources to form a total Integrated Asset Management strategy.

The fundamental *principles* of asset management represent current thinking with national asset owners as well as professional organisations consulting to asset owners, and relate to various *themes* that can be presented in the form of an Integrated Asset Management structure or *framework*. Such a general yet comprehensive framework would include the following functions:

It is in accordance with these *functions* that professional skills training courses have been developed, and in order to be able to relate to asset management practices common to the many different organisations of the various public and private sectors, the following concept map for the development of professional skills training courses in Integrated Asset Management was established:

- | Functions and Course Modules |
|--|
| <ul style="list-style-type: none">• assets strategic planning;• assets risk management;• assets costing and budgeting;• assets financial management;• assets ownership/stewardship;• human resources in IEAM;• assets data management;• assets information systems;• assets condition assessment;• assets performance measure;• assets tactical planning;• assets usage life-cycle. |

The Integrated Engineering Asset Management courses consist of a total suite of 12 modules, representing the functions of an Integrated Asset Management structure or *framework*.



The Integrated Engineering Asset Management courses were developed from a concept map that included asset management principles, themes, frameworks and functions.

Modes of Professional Training in Integrated Engineering Asset Management

Introductory Overview, and how to Apply, Integrate and Benchmark Engineering Asset Management

one - day workshops for personnel in all levels of government or industry organisations that give an in-depth insight into how to apply, integrate and benchmark asset management effort, compared to Integrated Asset Management functions based upon international survey data. These workshops serve as a lead-in to the other two-day and one-day courses.

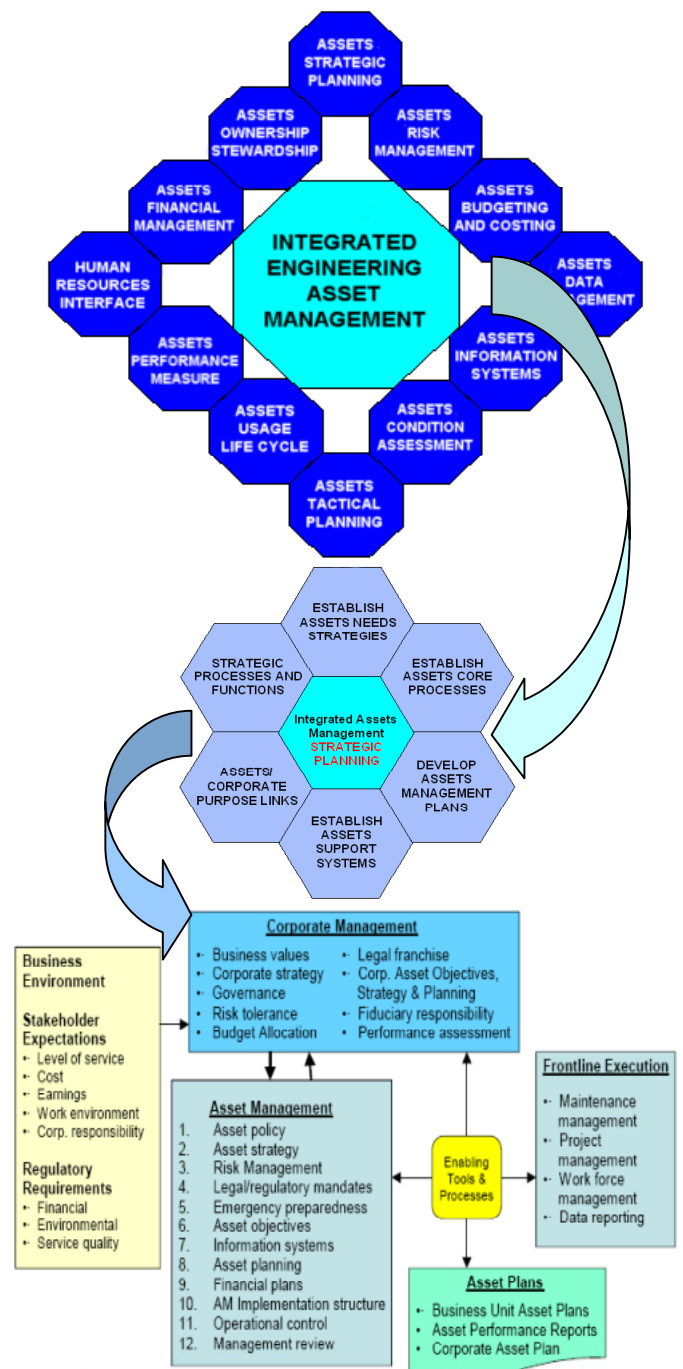
Composite Integrated Engineering Asset Management 6 x two-day courses serve as certificate-based, exercise-oriented, competency-based training usually as up-front lead-in to graduate award courses in Integrated Engineering Asset Management.


These workshops serve as a lead-in to the other two-day and one-day courses.

Assessing Integrated Engineering Asset Management 3 x one-day courses serve as executive education decision-making introduction to the implementation of organization-wide

12 x one-day courses of in-company Engineering Asset Management.

Comprehensive Organization-wide All-Levels Integrated Engineering Asset Management 12 x one-day courses serve as organization-wide, company-specific, practical 'how-to' understanding of the implementation of Engineering Asset Management in a topic-by-topic *drill-down* format.





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Contribution of Professional Training in Integrated Engineering Asset Management

The various formats of professional skills training delivery is designed to ensure a gradual and sustaining progress towards the establishment in organisations of an **Integrated Engineering Asset Management (IEAM) Programme**, with the necessary understanding and acceptance of the various themes and functions of IEAM by all levels in the organisation. Only then will such a Programme have any guarantee of success with the appropriate structured and comprehensive knowledge of its detailed implementation. Delegates will learn, at different strategic, tactical and operational levels of detail, exactly what would be expected from the implementation of an IEAM Programme, the relevant outcome deliverables, management plans, responsibilities, costs and benefits.

The educational contribution from the various training courses at the different strategic, tactical and operational levels of detail, include the following:

Development and implementation of assets:

- **Integrated Engineering Asset Management Programme**
- **Strategic management plan (needs strategies, processes and functions)**
- **Risk management plan (risk identification, calculation, ranks, mitigation)**
- **Data management plan (registers, data models, warehousing and mining)**
- **Condition assessment plan (condition profiling, monitoring and measure)**
- **Tactical management plan (aging modelling, reliability, availability, safety)**
- **Strategic HR management plan (capability maturity, HR - assets relations)**
- **Life-cycle usage management plan (life-cycle processes and residual life)**
- **Maintenance management plan (strategies, repair, renewal, rehabilitation)**
- **Performance management plan (functionality, utility, utilisation and KPIs)**
- **Information systems management plan (access, validity and architecture)**
- **Financial management plan (DCF, ROI, depreciation option, economic life)**
- **Budget & cost management plan (CIP, acquisition and whole-of-life costs)**

Contact Details:

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Workshops in Applying, Integrating and Assessing Organisational Asset Management

These 1-day workshops give management staff in all levels of government and industry organisations an in-depth insight into *how* to apply, integrate, assess and benchmark their particular asset management effort against the critical functions of Integrated Asset Management.

The **Integrated Asset Management (IAM)** series of composite training courses to be scheduled throughout the year explain in detail the development and establishment of the following IAM functions:

- Assets strategic planning and risk management
- Assets data management and information systems
- Assets condition assessment and performance measure
- Assets tactical planning and usage life-cycle modelling
- Assets financial management, costing and budgeting

Up-front workshops on how to apply, integrate, assess and benchmark an organisation's asset management effort against the critical functions of an Integrated Asset Management Program is considered essential. These workshops have been structured to run *prior* to the scheduled Integrated Asset Management series of composite training courses.

Topics covered in these up-front workshops include the following:

- Defining Integrated Asset Management and IAM principles
- Integrated Asset Management and International Perspectives
- Defining needs and benefits of Integrated Asset Management
- Analysing Asset Management Functions and Frameworks
- Applying Assessment Criteria for Asset Management Plans
- Human Resources Planning in Integrated Asset Management
- Application of Integrated Asset Management Functions
- Assessment of Integrated Asset Management Functions
- Benchmarking Strategic Planning and Risk Management
- Benchmarking Data Management and Information Systems
- Benchmarking Condition Assessment and Performance Measure
- Benchmarking Tactical Planning and Usage Life-Cycle Modelling
- Benchmarking Financial Management, Costing and Budgeting

For further information regarding these workshops, contact the Academy or CIEAM at e-mail: info@apetorg.com.au or admin@cieam.com

INTRODUCTORY OVERVIEW WORKSHOP

Integrated Asset Management and Asset Management Functions

This 1-day workshop gives management staff in all levels of government and industry organisations an in-depth insight into *how* to assess, benchmark, and enhance their particular asset management effort against the application and integration of critical functions of Integrated Asset Management.

WORKSHOP CONTENTS

Coffee and registration **08h30 – 09h00**

INTRODUCTION

1. Defining Assets
2. Defining Asset Management
3. Asset Management Principles
4. Asset Management Frameworks

Morning Tea **10h30 – 11h00**

5. Integrated Asset Management
6. Perspective on Asset Management
7. The Need for Asset Management
8. Benefits of Asset Management

Lunch **12h30 – 13h00**

9. Research on Asset Management
10. Developing an Asset Management Plan

Afternoon Tea **14h30 – 15h00**

11. Assessment Criteria for Asset Management
12. Discussions and Assessment of Asset Management

EXERCISES

Closure **16h30**

For specific dates and venues, please refer to the back-page schedule
For specific costs, please contact the workshop or course organizers

INTEGRATED ASSET MANAGEMENT PRACTICE WORKSHOP

Applying Integrated Asset Management in Practice

The basic *principles* of asset management relate to specific concepts or *themes* that can be presented in the form of an Integrated Asset Management structure or *framework* with specific *functions*. It is in accordance with these *functions* that the Integrated Asset Management Manual has been developed. This workshop relates to the practical application of these functions in public and private sector organisations, in line with an IAM framework.

WORKSHOP CONTENTS

Coffee and registration	08h30 – 09h00
<ul style="list-style-type: none">• Introductory Overview to Integrated Asset Management (IAM)• Establishing IAM principles and themes• Developing an IAM Framework	
Morning Tea	10h30 – 11h00
<ul style="list-style-type: none">• IAM Strategic Planning• IAM Risk Management• IAM Budgeting and Costing	
Lunch	12h30 – 13h00
<ul style="list-style-type: none">• IAM Condition Assessment• IAM Condition Modelling• IAM Performance Measure	
Afternoon Tea	14h30 – 15h00
<ul style="list-style-type: none">• IAM Data and Information Management• IAM Tactical and Operations Planning• IAM Life Cycle Maintenance Optimisation	
Closure	16h30

For specific dates and venues, please refer to the back-page schedule
For specific costs, please contact the workshop or course organizers

INTEGRATED ASSET MANAGEMENT ASSESSMENT WORKSHOP

Benchmarking the Status of Asset Management Functions

This 1-day workshop is linked to sector-wide surveys of the implementation and integration of Integrated Asset Management that serves as a basis for assessing an organization's asset management.

WORKSHOP CONTENTS

Coffee and registration **08h30 – 09h00**

INTRODUCTION

1. Asset Management Principles and Functions
2. Developing an Asset Management Plan
3. Assessment Criteria for Asset Management

Morning Tea **10h30 – 11h00**

4. Analysing Asset Management Functions and Frameworks
5. Applying Assessment Criteria for Integrated Asset Management
6. Application of Integrated Asset Management Functions

Lunch **12h30 – 13h00**

7. Benchmarking Strategic Planning and Risk Management
8. Benchmarking Data Management and Information Systems
9. Benchmarking Condition Assessment and Performance Measure

Afternoon Tea **14h30 – 15h00**

10. Benchmarking Tactical Planning and Assets Usage Life-Cycle
11. Benchmarking Financial Management, Costing and Budgeting
12. Discussion and Assessment of Asset Management

EXERCISES

Closure **16h30**

For specific dates and venues, please refer to the back-page schedule
For specific costs, please contact the workshop or course organizers

COMPOSITE CERTIFICATE COURSE 1

Assets Strategic Planning and Assets Risk Management Strategy:

From Development of Assets Strategy Plans to the
Development of Asset Risk Management Plans

This 2-day course gives management staff in all levels of government and industry organisations, an overview of the integration of asset management frameworks and plans to risk management plans, and how risk based decision making can benefit their organisation's asset delivery strategies.

COURSE CONTENTS

DAY 1

Coffee and registration 08h30 – 09h00

- Defining Assets and Asset Management
- Asset Management Functions and Frameworks

Morning Tea 10h30 – 11h00

- Developing the Asset Management Plan
- Assessment Criteria for Asset Management

Lunch 10h30 – 11h00

- Developing and Implementing an Assets Strategy
- Establishing Strategic Processes and Functions

Afternoon Tea 14h30 – 15h00

- Developing an Assets Strategy Plan
- Assessment Criteria for Assets Strategic Planning

DAY 2

Coffee 08h30 – 09h00

- Assets Risk and Asset Management Implications
- Developing the Asset Risk Management Process

Morning Tea 10h30 – 11h00

- Assets Risk Identification and Calculating Risk Factors
- Qualitative and Quantitative Asset Risk Management

Lunch 10h30 – 11h00

- Strategic SWOT Analysis and Assets Risk Assessment
- The Assets Risk Action Schedule and Risk Mitigation

Afternoon Tea 14h30 – 15h00

- Developing the Asset Risk Management Plan
- National and International Risk Management Standards

Closure 16h30

For specific dates and venues, please refer to the back-page schedule
For specific costs, please contact the workshop or course organizers

COMPOSITE CERTIFICATE COURSE 2

Assets Budgeting and Costing and Assets Financial Management:

From Development of an Assets Budget and Cost Management Plan to
Assets Financial Management and Analysis Methods

This 2-day course provides an overview of assets capital investment strategic planning, whole of life costing and life-cycle costing processes, as well as estimating assets operations and maintenance budgets. The course further relates assets budgeting and costing to appropriate assets financial management analysis methods for developing a Financial Management Plan.

COURSE CONTENTS

DAY 1

Coffee and registration 08h30 – 09h00

- Developing an Assets Capital Costs Plan
- Assets Capital Investment Strategic Planning

Morning Tea 10h30 – 11h00

- Assets Whole of Life Costing Methods
- Estimating Assets Budget and Cost Elements

Lunch 12h30 – 13h00

- Operations and Maintenance Budgets and Costs
- Life Cycle Costing Process and Asset Management

Afternoon Tea 14h30 – 15h00

- Developing the Assets Budget and Cost Management Plan
- Assessment Criteria for Assets Budget and Cost Management

DAY 2

Coffee and registration 08h30 – 09h00

- The Assets Financial Management Decision Process
- Assets Acquisitions, Funding And Discounted Cash Flow

Morning Tea 10h30 – 11h00

- Assets Opportunity Costs and Return on Assets Investment
- Assets Valuation and Economic Life versus Residual Life

Lunch 12h30 – 13h00

- Assets Depreciation and Replacement/Rehabilitation Costs
- Appropriate Assets Financial Management Analysis Methods

Afternoon Tea 14h30 – 15h00

- Developing the Assets Financial Management Plan
- Assessment Criteria for Assets Financial Management

Closure 16h30

For specific dates and venues, please refer to the back-page schedule
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COMPOSITE CERTIFICATE COURSE 3

Assets Data Management and Assets Information Systems:

**From Development of an Asset Data Management Plan to the
Functionality of Assets Information Systems**

This 2-day course provides an overview of data acquisition, storage and retrieval, quality, documentation, dissemination and maintenance, necessary for the development of a Data Management Plan. The course further relates assets data management to information management for the coordinated planning of assets information systems.

COURSE CONTENTS

DAY 1

Coffee and registration 08h30 – 09h00

- Developing an Assets Register for Information Needs
- Assets and Assets Register Hierarchical Structures

Morning Tea 10h30 – 11h00

- Assets Data Models and Assets Data Hierarchies
- Assets Data Selection Criteria and Distress Condition Data

Lunch 12h30 – 13h00

- Assets Data Capture, Storage, Mining, Retrieval and Analysis
- Assets Data Management and Knowledge Management

Afternoon Tea 14h30 – 15h00

- Developing the Assets Data Management Plan
- Assessment Criteria for Assets Data Management

DAY 2

Coffee 08h30 – 09h00

- The Economics of Assets Information Management Systems
- The Principles of Assets Information Management Systems

Morning Tea 10h30 – 11h00

- Developing an Assets-Based Information Management System
- Assets Information Management Access / Validity / Dispersion

Lunch 12h30 – 13h00

- REAL Modelling for Assets Information Management Systems
- Integrated Electronic Information Assets Management Systems

Afternoon Tea 14h30 – 15h00

- Developing the Assets Information Management Plan
- Assessment Criteria for Assets Information Management Systems

Closure 16h30

For specific dates and venues, please refer to the back-page schedule
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COMPOSITE CERTIFICATE COURSE 4

Assets Condition Assessment and Assets Performance Measure:

From Development of an Assets Monitoring Plan to the
Application of Assets Performance Measure

This 2-day course provides an overview of assets condition assessment, scoping, profiling and modelling, as well as the determination of assets failure modes and effects criticality, and assets health monitoring. The course further relates condition monitoring to an assets level of service and performance specification to develop a Performance Management Plan.

COURSE CONTENTS

DAY 1

Coffee and registration 08h30 – 09h00

- Assets Condition Assessment and Analysis
- Conducting Assets Inspections and Surveys

Morning Tea 10h30 – 11h00

- Assets Condition Scoping, Profiling and Modelling
- Assets Condition Assessment and Performance Measure

Lunch 12h30 – 13h00

- Assets Failure Modes and Effects Criticality Analysis
- Assets Health Monitoring and Life-Cycle Management

Afternoon Tea 14h30 – 15h00

- Criteria for Assets Condition Monitoring and Measurement
- Developing the Assets Condition Assessment Plan

DAY 2

Coffee 08h30 – 09h00

- Assets Level of Service And Performance Specifications
- The Balanced Scorecard and the Assets Management Cycle

Morning Tea 10h30 – 11h00

- Assets Performance Standards and Key Performance Indicators
- Assets Functionality, Utilisation, Performance and Condition

Lunch 12h30 – 13h00

- Risk-Based versus Outcome Performance Measure Criteria
- Performance of In-House versus Contracted Asset Management

Afternoon Tea 14h30 – 15h00

- Developing the Assets Performance Management Plan
- Assessment Criteria for Assets Performance Management

Closure 16h30

For specific costs, dates and venues, please refer to the back-page schedule
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COMPOSITE CERTIFICATE COURSE 5

Assets Tactical Planning and Assets Usage Life Cycle:

From Development of an Assets Tactical Plan to the
Optimisation of Assets Maintenance Programs

This 2-day course provides an overview of assets integrity management and assets performance diagnosis and prognosis as well as an analysis of assets Reliability, Availability and Maintainability (RAM). The course further relates assets tactical planning to assets maintenance strategic planning and optimisation in the development of a Usage Life-Cycle Management Plan.

COURSE CONTENTS

DAY 1

Coffee and registration 08h30 – 09h00

- Assets Integrity Management and Analysis Methods
- Assets Deterioration/Rehabilitation Analysis Options

Morning Tea 10h30 – 11h00

- Assets Consumption/Preservation Analysis Options
- Assets Rehabilitation/Preservation Selection Methods

Lunch 12h30 – 13h00

- Assets Performance Diagnosis and Prognosis Methods
- Assets Reliability, Availability and Maintainability (RAM)

Afternoon Tea 14h30 – 15h00

- Developing an Assets Integrity Management Plan
- Assessment Criteria for Assets Integrity Management

DAY 2

Coffee and registration 08h30 – 09h00

- Determining Assets Design Integrity Criteria
- The Principles of Assets Information Management Systems

Morning Tea 10h30 – 11h00

- Assets Usage Life Cycle and Strategic Planning
- Assets Usage Life Cycle Processes and Evaluation

Lunch 12h30 – 13h00

- Assets Maintenance Strategic Planning and Optimisation
- Assets Life Cycle Integrity and End-Of-Use/Disposal Criteria

Afternoon Tea 14h30 – 15h00

- Developing the Assets Usage Life Cycle Management Plan
- Assessment Criteria for Assets Usage Life Cycle Management

Closure 16h30

For specific dates and venues, please refer to the back-page schedule
For specific costs, please contact the workshop or course organizers

COMPOSITE CERTIFICATE COURSE 6

Assets Ownership/Stewardship and Human Resources Planning:

From Development of Assets Stewardship Plans to the
Development of Human Resource Management Plans

This 2-day course gives management staff in all levels of government and industry organisations a detailed perspective of the integration of asset strategy to assets ownership and assets stewardship management plans and strategic planning of a capital assets interface with human resource assets according to the general IAM framework.

COURSE CONTENTS

DAY 1

Coffee and registration 08h30 – 09h00

- Basic Principles of Assets Ownership / Stewardship
- Asset Ownership / Stewardship Strategic Governance

Morning Tea 10h30 – 11h00

- Asset Ownership / Stewardship Responsibilities
- Assets Stakeholder Relationships and Involvement

Lunch 12h30 – 13h00

- Public Private Partnerships (PPPs)
- Competitive Negotiating Environment

Afternoon Tea 14h30 – 15h00

- Developing Assets Ownership / Stewardship Plans
- Applying the Assets Ownership / Stewardship Plan

DAY 2

Coffee and registration 08h30 – 09h00

- Strategic Human Resources in Asset Management
- Human Resources Planning in Asset Management

Morning Tea 10h30 – 11h00

- Human Resources and Asset Management Capability
- Human Resources and Assets Education and Training

Lunch 12h30 – 13h00


- Human Resources Processes in Asset Management
- Human Resources Assets Teams and Virtual Teams

Afternoon Tea 14h30 – 15h00

- The Strategic Human Resources Management Plan
- Assessment Criteria for Strategic HRM in IEAM

Closure 16h30

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WORKSHOPS AND COMPOSITE COURSES SCHEDULE

INTRODUCTORY OVERVIEW WORKSHOP

Dates				
Venues				

INTEGRATED ASSET MANAGEMENT PRACTICE WORKSHOP

Dates				
Venues				

INTEGRATED ASSET MANAGEMENT ASSESSMENT WORKSHOP

Dates				
Venues				

COMPOSITE COURSE 1 – Assets Strategic Planning & Risk Management

Dates				
Venues				

COMPOSITE COURSE 2 – Assets Budgeting and Costing & Financial Management

Dates				
Venues				

COMPOSITE COURSE 3 – Assets Data Management & Information Systems

Dates				
Venues				

COMPOSITE COURSE 4 – Assets Condition Assessment & Performance Measure

Dates				
Venues				

COMPOSITE COURSE 5 – Assets Tactical Planning & Usage Life Cycle

Dates				
Venues				

COMPOSITE COURSE 6 – Assets Ownership / Stewardship & Human Resources

Dates				
Venues				

Legend: A-Adelaide; B-Brisbane; H-Hobart; M-Melbourne; P-Perth; S-Sydney; O-Overseas
AR-Academy Training Venue Gold Coast; IC-Specific In-Company Course Venue


PLEASE NOTE: Dates and venues can change - Final confirmation by e-mail.

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