

Physical Asset Manager: 132104

Section Five: Subject Specifications

Summary of the structure of the Knowledge Subject Specifications:

The aim of the knowledge component of the curriculum is to supply the foundation for the learner's ability to perform the occupational tasks. It should be noted that this curriculum Asset Manager, is following on the curriculum for the Asset Management Practitioner. The learning pathway is structured in the following manner:

- Occupational Curriculum for the Asset Management Practitioner which spans NQF levels 5 and 6; followed by the
- Occupational Curriculum for the Asset Manager which spans NQF levels 7 and 8.

In order to support this structure, the theoretical component of the occupational curriculum also spans firstly NQF levels 5 and 6 with an exit level external assessment, followed by theoretical subjects at NQF levels 7 and 8.

These subjects are structured in the following manner:

Asset Management Practitioner

	Subject	NQF level	NQF level
1.	Physical Asset and Facilities Management	5	6
2.	Strategic Asset Management	5	6
3.	Financial Management and Accounting Processes	5	6
4.	Organisational Asset Management Capability	5	6

Physical Asset Manager

	Subject	NQF level	NQF level
1.	Physical Asset and Facilities Management	7	8
2.	Strategic Asset Management	7	8
3.	Financial Management and Industrial Engineering	7	8
4.	Organisational Asset Management Capability	7	

The priority at this point in time is the subject specifications for the occupational curriculum of Asset Manager.

Physical Asset and Facilities Management (level 7)

Credits: 16

Subject Title: Physical Asset and Facilities Management (3rd Year)

Level: 7

Purpose of the Subject: to equip the learner with the underpinning theory on implementation of organizational asset management methodology

Table of Content:

Engineering Processes for Asset Management

Business Processes and Process mapping
Role definition
Business Architecture

Facilities planning

Introduction to facilities planning
Facility requirements
Facilities Development

Physical Asset Management IT systems

Physical Asset Management IT systems design
Physical Asset Management process design
Physical Asset management data base design
Physical Asset management modelling
Physical Asset management IT systems application and testing

Internal controls and auditing

Internal control and environment including Code of ethics
The relation between internal controls and business processes
Auditing

Selected Life cycle principles

Life cycle of physical asset acquisition
Benchmarking performance
Operations specifications assessment
Physical asset status reporting
Disposal of physical assets

Research principles and methodologies

Research principles
Research methodology
Design as a problem-solving process
Technical structure of a dissertation

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
Engineering Processes for physical Asset Management	Business Processes and Process Mapping	<ul style="list-style-type: none"> Describe, compare and evaluate various business processes Describe methods of process mapping as applicable to physical asset management and illustrate application in the workplace 	Physical asset management processes as aligned within an asset management division within the organisational hierarchy
	Role definition	<ul style="list-style-type: none"> Define and integrate the various roles in asset management process Integrate the output of 	

Work-in-progress: Occupational Curriculum: Physical Asset Manager: 132104
Subject Specifications

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
	Business Architecture	<p>physical asset management with the business strategy</p> <ul style="list-style-type: none"> Analyse and model the workflow within asset management Assess the structure of physical asset management in relation of how it supports the goals and objectives of the organisation 	
Facilities planning	Introduction to facilities planning	<ul style="list-style-type: none"> Understand facility planning principles, concepts and approaches 	Managing the integration of physical asset location and physical limitations
	Facility requirements	<ul style="list-style-type: none"> Describe and evaluate methods, techniques and tools to systematically determine facility requirements, Determine the required space of and relationships between activities conducted within the facilities. 	
	Facilities development	<ul style="list-style-type: none"> Develop and evaluate alternative plans and layouts and present the results. Describe aspects such as facilities location, manufacturing and service process design, capacity planning, materials handling, personnel facilities, storage and warehousing and the associated relationship between these factors. 	
Physical Asset Management IT systems	Physical Asset Management IT systems design	<ul style="list-style-type: none"> Identify constituent parts and functions of the systems development planning processes Analyse systems requirements Make a qualitative assessment of different approaches towards structured analysis and design of systems 	Developing and operating an asset management system whilst utilising an IT system
	Physical Asset Management process design	<ul style="list-style-type: none"> Describe the process parameters and requirements Develop a process design 	
	Physical Asset management data base design	<ul style="list-style-type: none"> Interpret database design within system parameters 	
	Physical Asset management modelling	<ul style="list-style-type: none"> Identify constituent parts and functions of object-orientated design and modeling 	
	Physical Asset management IT systems application and testing	<ul style="list-style-type: none"> Describe information system application building Perform information system testing 	
Internal controls and auditing	Internal control and environment including Code of ethics	<ul style="list-style-type: none"> Integrate principles and practices of internal controls Review the internal control framework in asset 	Necessary control mechanisms according to the asset management standards

Work-in-progress: Occupational Curriculum: Physical Asset Manager: 132104
Subject Specifications

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
		<ul style="list-style-type: none"> management environment Evaluate and integrate the role of ethics in the development of internal controls 	and legislation (SHEQ)
	The relation between internal controls and business processes	<ul style="list-style-type: none"> Interface asset management business processes with internal control systems Integrate internal control with asset management business processes 	
	Auditing	<ul style="list-style-type: none"> Justify Asset management audits Justify quality audits Present a case for ISO certification 	
Selected Life Cycle Principles	Life cycle of physical asset acquisition	<ul style="list-style-type: none"> Match the asset acquisition with asset demands within the strategic plan Specify risks within asset acquisition processes and appropriate mitigation measures Integrate legal and contract management of asset acquisition identify constituent parts and functions of the process of commissioning of assets 	Optimisation of asset utilisation within the asset life cycle
	Benchmarking performance	<ul style="list-style-type: none"> Specify performance indicators Determine measurement criteria Develop a model to compare benchmarking data with actual asset results 	
	Operations specifications assessment	<ul style="list-style-type: none"> identify constituent parts and functions of demand management (demand for the use of the asset) Specify asset availability criteria Match operational requirements with resources Extrapolate excess utilisation of assets to asset maintenance requirements or asset disposal 	
	Physical Asset status reporting	<ul style="list-style-type: none"> Physically verify asset utilisation against design parameters and operational requirements Draft report on asset utilisation and the influence thereof on the status of the asset Manipulate asset system data in order to disseminate correct information 	
	Disposal of Physical assets	<ul style="list-style-type: none"> Determine disposal criteria and processes 	

Work-in-progress: Occupational Curriculum: Physical Asset Manager: 132104
Subject Specifications

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
		<ul style="list-style-type: none"> • Describe the risks of asset disposal and mitigation measures • Decommissioning and recommissioning of assets 	
Research principles and methodologies	Research principles	<ul style="list-style-type: none"> • Discuss research principles as they pertain to the physical asset management environment 	Independent research project in a unique specialised area of physical asset management
	Research methodology	<ul style="list-style-type: none"> • Compare and contrast methods of research • Compare and contrast research strategies • Design research proposals, • Define and justify the scope and nature of the research project, • Administrative procedures, • Identify and justify research topics, • Evaluate and justify the problem and its setting, • Formulate applications for funding, • Formulate research protocols and research planning. 	
	Design as a problem-solving process	<ul style="list-style-type: none"> • Integrate the formulation of design principles, • Compare and contrast methods to solving conflicting requirements, • Compare and contrast precedent studies, • Appraise design thinking and the evaluation of design 	
	Technical structure of a research project	<ul style="list-style-type: none"> • Apply the structure to the research project which adhere to generally accepted standards of: <ul style="list-style-type: none"> ○ format, ○ layout, ○ numbering system, ○ typography, ○ bibliography and ○ referencing 	

Physical Asset and Facilities Management (level 8)

Credits: 16
Subject Title: Physical Asset and Facilities Management (4th Year)
Level: 8

Purpose of the Subject: to equip the learner with the underpinning theoretical insight on asset performance and benchmarking, maintenance of assets and planning and the setting of AM objectives which is derived from and consistent with the strategic objectives of an organisation.

Table of Content:

Industrial and Systems Engineering

Physical Asset performance
Manufacturing processes
Material properties and characteristics
Performance benchmarking

Valuation of Physical Assets

Introduction to valuation
Valuation models
Types of valuation
Physical Asset valuation reporting

Facilities Planning

Introduction to facilities planning and decision making
Strategic integrated management process
Infrastructure system evaluation

Physical Asset Maintenance Engineering

Physical Asset Maintenance Principles and Methodologies
Analysis tools and techniques
Maintenance planning
Maintenance operations
Condition assessment of physical assets

Asset Management Planning

User requirements and entity needs
Operational risk planning
Strategic Physical asset management

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
Industrial and Systems Engineering	Physical Asset performance	<ul style="list-style-type: none"> Appraise asset performance in the context of the life cycle of the asset Define indicators related to financial performance Review service delivery within financial parameters Define and evaluate capital investment (private and public sectors) (CAPEX) Appraise asset performance assessment in relation to the requirements Review operating and maintenance cost over the life cycle of the asset 	Industrial Engineering as applied in the asset management environment
	Manufacturing processes	<ul style="list-style-type: none"> Design manufacturing processes mapping 	

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
		<ul style="list-style-type: none"> Design for optimal lay out Design for maintainability and SHEQ 	
	Material properties and characteristics	<ul style="list-style-type: none"> Compare materials in terms of their behaviour Compare a variety of materials of construction Analyse compatibility with process liquids Compare and contrast optimal use and limitations Analyse erosion and corrosion patterns 	
	Performance benchmarking	<ul style="list-style-type: none"> Execute comparison with similar assets Design data capturing and the management of information in order to be comparable Analyse and model performance Forecast performance Analyse and justify parameter adjustment and its effect on performance 	
Valuation of Physical Assets	Introduction to valuation	<ul style="list-style-type: none"> Define valuation Analyse and compare valuation principles and concepts Compare and contrast valuation methods and techniques Analyse replacement value of the asset Compare and contrast methods to determine the replacement value 	Physical asset utilisation within the complete asset life cycle
	Valuation models	<ul style="list-style-type: none"> Evaluate, compare and select suitable valuation models Compare and contrast depreciation methods 	
	Types of valuation	<ul style="list-style-type: none"> Describe, compare and evaluate the different types of valuation and the application prospects of each Describe, compare and evaluate Property valuation 	
	Physical Asset valuation reporting	<ul style="list-style-type: none"> Justify intervals of reporting Design reporting information and data Design trend monitoring Design reporting formats 	
Facilities planning	Introduction to facilities planning and decision making	<ul style="list-style-type: none"> Describe concepts of urban and regional planning Appraise planning process, policy and institutional framework in which planning functions in SA Appraise the regulatory framework in SA Integrate the interaction and co-operation of land and space, economy, politics and social aspects related to space in decision making 	Integration of asset location and physical limitations

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
		<ul style="list-style-type: none"> Develop interventions for sustainable development planning and design 	
	Strategic integrated management process	<ul style="list-style-type: none"> Argue the definitions and rationale for land-use management and the strategic integrated development process 	
	Infrastructure system evaluation	<ul style="list-style-type: none"> Appraise infrastructure system evaluation, Design for risk assessment, Appraise feasibility and decision analysis Analyse life cycle costing of infrastructure Appraise demand and supply analysis Evaluate demand forecasting models 	
Physical Asset Maintenance Engineering and management	Physical Asset Maintenance Principles and Methodologies	<ul style="list-style-type: none"> Compare and contrast various approaches and strategies Appraise reliability Centred Maintenance (RCM) principles Appraise business Centred maintenance (BCM) Appraise total productive maintenance (TPM) 	Physical asset maintenance operations and systems
	Analysis tools and techniques	<ul style="list-style-type: none"> Appraise and justify the reliability and fault diagnosis decision tree Appraise and justify root cause analysis Appraise and justify Failure modes and effect analysis Appraise and justify Reliability and availability simulation 	
	Maintenance planning	<ul style="list-style-type: none"> Formulate the maintenance cycle as applied to asset maintenance Determine economic maintenance requirements of an asset portfolio Evaluate and determine tactical maintenance interventions in support of strategic objectives Analyse the various models in response to variations in asset demand Develop a maintenance plan with relevant tactics 	
	Maintenance operations	<ul style="list-style-type: none"> Perform an operations specifications assessment Evaluate asset utilisation & optimisation Design improvement targets Compile an outsourcing and contracting strategy Design changes in the configuration of the asset register with 	
	Condition assessment of physical assets	<ul style="list-style-type: none"> Selection of appropriate condition assessment techniques 	

Work-in-progress: Occupational Curriculum: Physical Asset Manager: 132104
Subject Specifications

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
		<ul style="list-style-type: none"> • Analyse and argue condition assessment principles • Compare and contrast methods to determine failure alternatives • Interpret and draft of condition assessment reports • Devise condition based maintenance interventions and intervals 	
Physical Asset management planning	User requirements and entity needs	<ul style="list-style-type: none"> • Justify the purpose of needs analysis • Compare and contrast tools, methods and techniques for reviewing options and their impact on integrated system effectiveness • Analyse the complexity, impacts and priorities of critical projects and multiple projects • Justify project management principles and the importance of operating to cost, quality and time obligations • Compare and contrast cost and performance analysis methods and techniques • Compare and contrast Resource planning methods • Design and justify procurement strategies applicable to the acquisition/creation of assets 	Physical asset portfolio of a company
	Operational risk planning	<ul style="list-style-type: none"> • Evaluate incident and emergency response and recovery standards and procedures • Design disaster recovery strategies • Compare and contrast business continuity planning methods 	
	Strategic Physical Asset Management	<ul style="list-style-type: none"> • Review and justify demand forecasting • Review and justify remaining life forecasting • Review and justify technology obsolescence • Review and justify replacement decision making 	

Strategic Management (level 7)

Credits: 16
Subject Title: Strategic Management (3rd Year)
Purpose of the Subject: to equip the learner with the theoretical understanding of risk management and strategic planning for asset management as it relates to physical asset management
Level: 7

Table of Content:

Enterprise Risk Management

Planning quantification
Risk management processes

Strategic planning for asset management

Asset Management framework and strategy
Strategic planning methods and processes
Social environment
Governance

Project management

Project management methodology and practices

Public resource management

Aligning delivery and resource demand
The impact of development and industrialisation on sustainable development

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
Enterprise Risk Management	Planning quantification	<ul style="list-style-type: none"> Identify risks relating to current and planned activities, Describe the nature of the risks and determine the probability of occurrence and consequences Prioritise risks for appropriate analysis and control Identify suitable preventive, detective and corrective control measures Determine the impact and cost of mitigating measures (risk appetite) 	The asset risk profile and information distribution to decision makers
	Risk management methodology	<ul style="list-style-type: none"> Apply the key stages of the risk management process for asset risk management Identify the most appropriate risk management methodology to the asset profile Develop effective systems for monitoring adherence to risk management processes Evaluate communication channels to distribute information on identified risks to relevant people across the organisation and third parties where appropriate 	
Strategic planning for asset management	Asset Management framework and strategy	<ul style="list-style-type: none"> Identify principles of strategic management applicable to asset management Compare and contrast the components of a strategic plan Analyse the impact of legislation and 	A culture of socially responsible strategic planning

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
	Strategic planning methods and processes	<p>other statutory requirements on strategic planning</p> <ul style="list-style-type: none"> • Draft a needs analysis for future planning; • Draft option analyses based on various needs analyses • Analyse alternative strategic planning methods and processes • Distinguish methods of strategic management and business planning • Interpret the design and use of KPIs and balanced scorecard techniques 	
	Social environment	<ul style="list-style-type: none"> • Discuss Corporate Social Investment (CSI) • Discuss strategies to develop stakeholder management and consultation processes • Analyse the effect of stakeholder expectations on the delivery of Asset Management plans • Differentiate between the various organisational stakeholders, their interfaces and how their requirements are reflected in the AM Strategy • Discuss the impact of changing economic/stakeholder expectations on the day-to-day and long term management of assets • Discuss the concept of carbon footprint and tax 	
	Governance	<ul style="list-style-type: none"> • Discuss the applicable legislative and regulatory frameworks • Discuss the importance of having an ethical and value based approach to governance and how to put this into practice • Evaluate current and emerging social attitudes to management and leadership practice and the importance of being sensitive to these • Evaluate current and emerging social concerns and expectations that are relevant to your sector • Analyse ways in which similar organisations deal with current and emerging social and environmental concerns and expectations 	
Project management	Project management methodology and practices	<ul style="list-style-type: none"> • Analyse the utilisation of various Project management systems • Describe legal, procurement and contract management processes • Develop work breakdown structures and schedules • Describe various quality management methodologies • Discuss project control methods for cost and schedule control • Discuss financial management principles 	Managing and integrating inputs from various disciplines to achieve a common and strategic goal

Work-in-progress: Occupational Curriculum: Physical Asset Manager: 132104
Subject Specifications

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
Public resource management	Aligning delivery and resource demand	<ul style="list-style-type: none"> • Analyse theories and models for strategic policy design • Describe policy implementation methods • Describe budgetary systems and the management thereof • Analyse strategic planning frameworks 	Resource management for sustainable development
	The impact of development and industrialisation on sustainable development	<ul style="list-style-type: none"> • Describe normative criteria for sustainable development • Understand development strategies and instruments • Analyse development proposals for various levels of public and private sector stakeholders • Understand investment appraisal and optimisation techniques • Understand value-for-money criteria and financial evaluation methods 	

Strategic Management (level 8)

Credits: 16

Subject Title: Strategic Management (4th Year)

Purpose of the Subject: to equip learners with the theoretical insight in the integrated asset management system in response to organizational needs

Level: 8

Table of Content:

Strategic Business Management

Business excellence
Business environment
Financial Forecasting

Development planning

Infrastructure planning

Strategic planning

Business goals, objectives and plans and strategic options
Sustainability and environment

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
Strategic Business Management	Business excellence	<ul style="list-style-type: none"> Discuss the content and applicability of relevant business excellence models Compare and contrast the strengths and weakness of relevant business process excellence models 	Business management within a competitive environment with limited resources
	Business environment	<ul style="list-style-type: none"> Evaluate Competitive business investment analysis methods and techniques Compare relevant developments in the business environment and discuss the changes these cause in stakeholder expectations Identification of appropriate metrics for analysis and interpretation of information to track the business benefits of AM Strategies 	
	Financial Forecasting	<ul style="list-style-type: none"> Describe methods for managing working capital Evaluate cash flow forecasting scenarios Evaluate cost forecasting, project budget preparation and management Evaluate financing options Evaluate market analysis and econometric modeling of financial scenarios 	
Development planning	Infrastructure planning	<ul style="list-style-type: none"> Describe the basic concepts of planning Analysing the planning process, policy and institutional framework in which infrastructure planning functions Describe the strategic integrated development planning process Describe infrastructure proposal evaluation techniques Determine alternative life-cycle costing 	Managing the major infrastructure assets through IDP conceptual and all life-cycle phases

Work-in-progress: Occupational Curriculum: Physical Asset Manager: 132104
Subject Specifications

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
		models for assets <ul style="list-style-type: none"> • Describe demand and supply analysis • Describe demand forecasting models • Describe capacity and level of service analysis 	
Strategic planning	Business goals, objectives and plans and strategic options	<ul style="list-style-type: none"> • Describe how organisational asset management strategies support business goals • Evaluate asset management strategies and how these are reflected in asset management objectives and plans • Align the inter-relationship of business and asset management processes. • Develop strategic options and compare and assess their benefits and impacts 	Physical asset management - and organisational goals
	Sustainability and environment	<ul style="list-style-type: none"> • Describe environmental management standards and quality models • Describe sustainability principles and the application of sustainable development excellence models • Describe the implications of severe weather and climate change on sustainable asset development 	

Financial Management and Business Engineering Principles

Credits: 16

Subject Title: Financial Management and Business Engineering Principles (3rd Year)

Scope of the Subject:

To provide the learner with the underpinning theoretical understanding of financial management principles and methodologies and the role of financial information systems
to provide the learner with the underpinning theoretical understanding of asset management policies as a set of principles and mandated requirements derived from and consistent with the organisational strategic plan, providing a framework for the development and implementation of the AM strategy and the setting of AM objectives

Level: 7

Table of Content:

Financial Management

Introduction to financial management
The capital structure of the organisation
Financial and mathematical calculations
Financial decision making

Basic Engineering Economics

Money-time relationships and equivalence
Bases for comparison of alternatives
The influence of inflation on engineering economic calculations
Replacement analysis

Policy Formulation

Types of policies
Parameters
The role of stakeholder expectations in policy formulation
Develop policy

Financial Information Systems

Systems development and planning
Information
Knowledge Management

Property Law

Introduction
Legislation
Property administration

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
Financial management	Introduction to financial management	<ul style="list-style-type: none"> Argue issues and concepts in financial management 	Physical asset portfolio
	The capital structure of the organisation	<ul style="list-style-type: none"> Present a case for capital budgets, Present a case for time-value of money, Present a case for working capital policy, Present a case for budgeting process, Present a case for financial analysis, Present a case for investment in capital projects, 	
	Financial and mathematical	<ul style="list-style-type: none"> Argue principles of forecasting, 	

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
	calculations	probability and sampling theory. <ul style="list-style-type: none"> Present a case for predictions of business failures Present a case for ratio analysis Present a case for break even analysis Present a case for probabilistic costing 	
	Financial decision making	<ul style="list-style-type: none"> Argue inflation and taxation and their influence on financial decision making Justify the principle resource plan; Compare and contrast repair / modification; Evaluate interpretation of results; Appraise the cash flow of the entity; Compare and contrast Business Statistics /Quantitative techniques Present a case for cost of capital and financing decisions Justify working capital management 	
Basic engineering Economics	Money-time relationships and equivalence	<ul style="list-style-type: none"> Define equivalence in economic terms Discuss interest formulae and effective interest rates, Compare and contrast the advantages and disadvantages of bonds and loans for financing of assets 	Physical asset portfolio
	Bases for comparison of alternatives	Compare and contrast the following : <ul style="list-style-type: none"> Net present value, annual worth, internal rate of return, external rate of return, investment balance diagrams Decision making among alternatives on an after-tax basis 	
	The influence of inflation on engineering economic calculations	<ul style="list-style-type: none"> Compare and contrast useful lives equal to study period, Compare and contrast useful lives among alternatives, Compare and contrast mutually exclusive alternatives in terms of combinations of proposals 	
	Replacement analysis	<ul style="list-style-type: none"> Appraise the economic life of an asset, Appraise retirement without replacement Appraise replacement vs refurbishing 	
Policy formulation	Types of policies	<ul style="list-style-type: none"> Appraise financial policies Appraise operational policies Appraise maintenance policies 	Physical asset portfolio

Work-in-progress: Occupational Curriculum: Physical Asset Manager: 132104
Subject Specifications

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
		<ul style="list-style-type: none"> Appraise replacement policies Appraise Health and Safety policies 	
	Parameters	<ul style="list-style-type: none"> Scrutinize local legislation Scrutinize international protocols Scrutinize cultural and religious sensitivities Scrutinize organizational objectives and reputation 	
	The role of stakeholder expectations in policy formulation	<ul style="list-style-type: none"> Consider relevant developments in the business environment and the changes these cause in stakeholder expectations Consider stakeholder management and consultation processes Consider the impact of changing economic/stakeholder expectations on the long term management of assets 	
	Develop policy	<ul style="list-style-type: none"> Consider policy decision criteria Design the development processes 	
Financial Information Systems	Systems development and planning	<ul style="list-style-type: none"> Scrutinise the principles of system development, Design system planning and activities that take place during the total development process. Argue access and security. Consider computer and information technology, hardware and software, and networks. Design spreadsheet management. 	Organisation and asset management system
	Information	<ul style="list-style-type: none"> Argue principles of accuracy and data maintenance Consider data, statistics, information analysis; reports and presentation 	
	Knowledge Information Management (KIM)	<ul style="list-style-type: none"> Present an overview of KIM Present a case for information and knowledge auditing Integrate the development of a KIM strategy with a business strategy Appraise KIM governance Appraise corporate KIM policies Justify theoretical perspectives in KIM Present and overview of the development of KIM Integrate records management with KIM 	
Property law	Introduction	<ul style="list-style-type: none"> Argue the basic principles Explain moveable and immovable property Argue types of ownership 	Physical asset portfolio
	Legislation	Interpret and evaluate:	

Work-in-progress: Occupational Curriculum: Physical Asset Manager: 132104
Subject Specifications

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
		<ul style="list-style-type: none"> • Relevant legislation pertaining to property • Zoning regulations • Property by-laws • Rights over immovable property • Private legal circumscription of ownership 	
	Property administration	<ul style="list-style-type: none"> • Draft valuation rolls • Justify a basis for valuation • Justify the determination of rates and taxation • Interpret and evaluate real estate securities • Interpret and evaluate the registration of rights • Interpret and evaluate property development principles 	

Financial management and Business Engineering Principles

Credits: 16

Subject Title: Financial management and Business Engineering Principles (4th Year)

Purpose of the Subject: to equip the learner with the theoretical insight on the concepts of financial management

Level: 8

Table of Content:

Financial Management

Advanced systems development and planning
Financial reporting
Capital

Advanced Engineering Economics

Modelling the business process
Work-flow management
Organizational systems
Systems engineering

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
Financial management	Advanced systems development and planning	<ul style="list-style-type: none"> Evaluate advanced system development Evaluate advanced system planning Interpret and evaluate (ERP) enterprise resource planning systems application Interpret and evaluate advanced spreadsheet and data base management. 	Strategic physical asset management
	Financial Reporting	<ul style="list-style-type: none"> reporting timeframes Evaluate reporting criteria for auditing purposes Review operational and financial ratios Argue the reporting model Argue the manipulation of operational and financial data Review budgeting and budgets Appraise financial statements Argue liaison and communication with financial committees 	
	Capital	<ul style="list-style-type: none"> Asses and evaluate the portfolio funding strategy Appraise risk and rate of return, Justify portfolio management, Justify valuations and cost of capital. Integrate capital budgeting process with project involvement, Appraise the current asset management with a view to working capital operations. Present a case for capital structure, leasing, dividends 	

Work-in-progress: Occupational Curriculum: Physical Asset Manager: 132104
Subject Specifications

		<p>and financial engineering.</p> <ul style="list-style-type: none"> • Present a case for outsourcing and contracting • Present a case for scheduling and funding 	
Advanced business engineering	Modelling the business process	<ul style="list-style-type: none"> • Perform an analysis of ISO 9001 requirements • Select and motivate suitable metrics for sub-processes • Describe certification in terms of ISO 9001 	Strategic physical asset management within the business
	Work-flow management	<ul style="list-style-type: none"> • Evaluate business process mapping • Design and justify process optimisation • Discuss the impact of resource allocation 	
	Organizational systems	<ul style="list-style-type: none"> • Assess and evaluate organizational design • Review organisational structures in relation to the strategic objectives • Justify the integration of organisational systems 	
	Systems engineering	<ul style="list-style-type: none"> • Analyse and justify a systems approach • Analyse systems engineering processes • Compare and contrast systems engineering management methodologies in terms of the impact on the organisation and environment • Justify the application of re-engineering principles • Justify the integration of engineering functions 	

Organisational Asset Management Capability

Credits: 8
Subject Title: Organisational Asset Management Capability (3rd Year)
Scope of the Subject: the assessment and management of the capability of an organization with regard to asset management
Level: 7

Organisational asset management capability development

Organizational change
 Organisational culture
 Organisational structures and resources

Topic	Topic elements	Assessment Criteria	Contexts that the knowledge must relate to
Organisational asset management capability development	Organizational change	<ul style="list-style-type: none"> • Discuss the main models and methods for managing change effectively, in terms of their strengths and weaknesses • Discuss and review the political, bureaucratic and resource barriers to change and select and justify techniques that deal with these • Compare and contrast the principles and methods of managing culture change within organizations • Review and motivate the purpose and impact of change management 	
	Organisational culture	<ul style="list-style-type: none"> • Compare and contrast management methods for customer, staff, supplier and other stakeholder expectations during change • Analyse and discuss the concept of culture as applied to organisations • Justify the importance of values in underpinning individual and organisational culture • Review, compare and justify Your organisation's vision and strategy and current organisational culture • Asses to values, assumptions and behaviours that are consistent and inconsistent with your vision and strategy and formulate strategies for improvement 	
	Organisational structures and resources	<ul style="list-style-type: none"> • Review strategic options for continuing professional development processes • Compare and contrast resource management approaches, techniques and tools • Justify training needs analysis applications • Compare and contrast resource scheduling approaches, techniques and tools • Select and appraise the information 	

Work-in-progress: Occupational Curriculum: Physical Asset Manager: 132104
Subject Specifications

		<p>required to undertake workforce planning</p> <ul style="list-style-type: none"> • Evaluate the purpose of Service Level Agreements and contractual management including performance criteria and shared risk/reward mechanisms • Analyse and integrate organisational procedures and systems • Review and justify strategic options for continuous improvement principles and processes 	
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The provider accreditation requirements below pertain to all the above modules.

Provider Accreditation Requirements:

<p>Physical requirements in terms of access to:</p> <ul style="list-style-type: none"> ➤ Tools ➤ Equipment ➤ Processes ➤ Situations 	<ul style="list-style-type: none"> • Access to appropriate facilities (conducive environment): (Large room – Table and chairs, space for group activities, good light, good ventilation); • Learning material aligned to the qualification; • Appropriate learning aids such as DVDs, case studies, forms, checklists, etc.;
<ul style="list-style-type: none"> • Human Resources requirements in terms of: <ul style="list-style-type: none"> ➤ Number of staff ➤ Qualifications of learning facilitators ➤ Facilitator/learner ratios 	<ul style="list-style-type: none"> • Staff allocation as per QMS • Facilitator – Hons Degree in either accounting, engineering, quantity surveying, financial management or physical asset management and 3 years experience in an asset management capacity • Facilitator/ Learner ratio not to exceed a ratio of 1:30; • Registered assessor and moderator with Hons Degree in either accounting, engineering, quantity surveying, financial management or physical asset management and 3 years experience in an asset management capacity;
<ul style="list-style-type: none"> • Legal requirements in terms of compliance with: <ul style="list-style-type: none"> ➤ Legislation ➤ Industry charters ➤ Professional registration 	<ul style="list-style-type: none"> • Legally compliant venue, (i.e. fire protection devices, OHS and other legislation); • Quality Management System which includes all relevant policies and procedures; • Code of Conduct;