

No. 457

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**SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)**

In accordance with regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

Procurement, Logistics and Supply Chain Management

Registered by Organising Field 03, Business, Commerce and Management, publishes the following qualification for public comment.

This notice contains the titles, fields, subfields, NQF levels, credits, and purpose of the qualification. The qualification can be accessed via the **SAQA** web-site at www.saqa.org.za. Copies may also be obtained from the Directorate for Standards Setting and Development at the **SAQA** offices, Hatfield Forum West, **1067** Arcadia Street, Hatfield, Pretoria.

Comment on the qualification should reach **SAQA** at the address ***below and no later than 15 June 2006***. All correspondence should be marked Standards Setting – **SGB** for Procurement, Logistics and **Supply** Chain Management and addressed to

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S BHIKHA
DIRECTOR: STANDARDS SETTING AND DEVELOPMENT



SAQA QUAL ID	QUALIFICATION TITLE		
50459	National Diploma: Production and Inventory Management		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Procurement, Logistics and Supply Chain Mngt	3		
QUAL TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD	
National Diploma	Business, Commerce and Management Studies	Procurement	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUALIFICATION CLASS
Undefined	240	Level 5	Regular-ELOAC

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

This Qualification will contribute to increasing levels of competence of learners within Production and Inventory Management. It provides learners with a formal Qualification that **allows** for recognition, further mobility and transportability.

The skills, knowledge, values and understanding demonstrated within this Qualification are essential for a positive impact on social and economic transformation and upliftment within the democratic South African society. The learner will gain understanding of essential terminology, concepts, and strategies related to demand management, procurement and supplier planning, material requirements planning, capacity requirements planning, sales and operations planning, master scheduling, performance measurements, supplier relationships, quality control, and continuous improvement.

This Qualification will enable learners to function as team members of the multi-disciplinary Supply Chain Management sector as reliable and productive employees in the delivery of holistic Supply Chain Management Functions.

The Qualification will help learners to:

- > Increase their functional knowledge of production and inventory management.
- > Improve efficiency across the processes of the organisation's supply chain.
- > Streamline operations through accurate forecasting.
- > Predict outcomes more accurately.
- > Maximize customer satisfaction by delivering products and services Just-in-Time.
- > Increase profitability by optimising the organisation's inventory investment.
- > Enhance their credibility among peers, employers, and customers,

This Qualification is important and helpful for the following individuals.

- > Area warehouse supervisor.
- > Customer service administrator.
- > Demand manager.
- > Inbound logistics planner.
- > Inbound stock controller,
- > Information systems controller.
- > International logistics manager.
- > Inventory manager.
- > Inventory planning and control.
- > Logistics managers.

- > Logistics planner.
- > Logistics supervisor.
- > Material planner.
- > Material Service Coordinator.
- > Materials Controller.
- > Materials Manager.
- > Operations Manager.
- > Picker/packer.
- > Project planner/specialist/co-ordinator.
- > Buyer.
- > Production planner and controller.
- > Purchasing and materials manager.
- > Replenishment administrator.
- > Stock administrator.
- > Stock movement controller.
- > Stores/warehouse administrator.
- > Stores/warehouse controller.
- > Stores/warehouse manager.
- > Stores/warehouse supervisor.
- > Supply chain manager.
- > Team leader.
- > Transport coordinator.
- > Transport manager.
- > Transport Planner.

The learner **who** has successfully completed this Qualification could be eligible for recognition by the internationally recognised body of knowledge (APICS) American Production and Inventory Control Society and (SAPICS) The South African Production and Inventory Management.

Learners credited with this Qualification will be able to:

- > Increase productivity and reduce costs from the executive suite to the factory floor.
- > Explore the principles, concepts, and techniques for planning and controlling inventory at all stages of the manufacturing and distribution cycle, including establishing an inventory management plan, controlling inventory based on that plan, and monitoring performance.
- > Compare the various perspectives of value and understand that supply chain management enables companies to manage the trade-off between these perspectives
- > Identify the three ways to measure value: operational, customer, and financial.
- > Explain the causes of non-value-added activities.
- > Understand that supply chains increase net value by increasing value-added activities as well as minimizing non-value-added activities.
- > Identify how supply chains create net value according to the three ways of measuring value.
- > Describe the major decisions faced in analysing logistics and explain how these decisions support the physical and information flows in a supply chain.
- > Compare the landed cost of physical goods procured domestically versus physical goods procured internationally.
- > Explain how international logistics can be used to integrate physical goods from different countries of origin into the supply chain.
- > Discuss the goals of an effective logistics strategy and explain how the different pieces of a logistics system work together to support the logistics strategy.
- > Identify the Production logistics risks associated with managing a worldwide supply chain.
- > Understand why the measuring of supply chain performance is important.
- > Understand the role that performance measurement plays in a successful supply chain strategy.
- > Determine the appropriate types of measurements to consider.
- > Understand industry initiatives such as theory of constraints (TOC) and activity-based costing (ABC) that play a role in performance measurement.
- > Determine the organisational impact of implementing and modifying supply chain performance measurements.
- > Access the latest and most salient supply chain information.
- > Maintain professionalism in Supply Chain Management practice.
- > Contribute to the Supply Chain Management function.
- > Render a thorough Supply Chain Management service.

Rationale:

Production and inventory management are pivotal to an organisation's goal of getting the right products, to

the right customers, faster. The speed and quality of the flow of materials - from source suppliers to end consumers - is a significant differentiator in competitive, global markets.

This Qualification should provide learners with access to employment opportunities within the broader Production, Inventory Logistics and Supply Chain Management sectors. It reflects the need of the community, government and employers for workers to become competent in the essential skills needed for further learning and to receive recognition for existing skills and knowledge in this sector. This Qualification aims to develop learners, promote professionalism, work ethics and good governance. The level of flexibility within the range of electives will also allow the individual to pursue further career opportunities within Production and Inventory Management.

The Qualification combines a practical, hands-on approach with core principles and practices used in the production and inventory industry today.

The Qualification enables employees to gain technical and functional know-how, as well as the confidence to enhance their job performance. Learners will understand how to deliver products and services Just-in-Time, streamline operations through accurate forecasting, and manage all aspects of the supply chain.

Upon completion of the Qualification learners will be able to demonstrate increased production and inventory management technical knowledge to the employers, demonstrate confidence in their ability to contribute to the organisation's success, gain peer and industry recognition for their professional abilities, and establish professional growth, and self-assessment skills that last a lifetime.

RECOGNIZE PREVIOUS LEARNING?

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LEARNING ASSUMED TO BE IN PLACE

It is assumed that the learner entering this Qualification will have the following knowledge and skills:

- > Communication at NQF level 4 or equivalent.
- > Mathematical literacy at NQF level 4 or equivalent.
- > Ability to use quantitative techniques (statistics) at NQF level 4 or equivalent.
- > Computer literacy.

Recognition of Prior Learning

This Qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience according to the policies and procedures specified by the SETA/VETQA. The learner should be thoroughly briefed on the mechanism to be used and support and guidance should be provided. Care should be taken that the mechanism used provides the learner with an opportunity to demonstrate competence and is not so onerous as to prevent learners from taking up the RPL option towards gaining a Qualification.

Access to the Qualification

Access to this Qualification is open to all learners in possession of an FETC or equivalent Qualification at NQF Level 4.

QUALIFICATION RULES

The Qualification is made up of a planned combination of learning outcomes that have a defined purpose and will provide qualifying learners with applied competence and a basis for further training.

- > All learning in the Fundamental and Core Components is compulsory.
- > The learner must choose one of the two Elective Exit Level Outcomes to complete the Qualification.

EXIT LEVEL OUTCOMES

Fundamental component

1. Demonstrate an understanding of and apply the principles of Inventory Control.
2. Demonstrate an understanding of and apply principles of planning.
3. Demonstrate understanding of and apply the fundamentals of operations management.

Core component

4. Demonstrate an understanding of and apply the concepts and skills related to inventory purchasing and physical distribution.
5. Demonstrate an understanding of and apply the skills related to Supply and Demand Management.
6. Demonstrate an understanding of the concepts of and apply the skills related to Planning Material Requirements to support the Master Schedule.
7. Demonstrate an understanding of and apply the principles and practices of prioritising, executing and controlling of operations.
8. Demonstrate an understanding of and apply the principles of the strategic management of resources.
9. Demonstrate an understanding of and apply the theory and practice of strategic planning while participating in Supply Chain strategic planning activities.

Elective component

10. Demonstrate an understanding of and apply the principles of distribution requirements planning and customer service.

OR

11. Demonstrate an understanding of and apply the Lean operating principles in manufacturing.

Critical Cross-Field Outcomes

All the Critical Cross-Field Outcomes are addressed through the Qualification. Examples of how this can be done are indicated below:

Identifying:

- > Identify and solve problems using critical and creative thinking processes, e.g. by trying to find creative solutions to how to optimise production and Inventory Resources.

Working :

- > **Work** effectively with others as a member of a team, group, organisation or community to integrate Supply Chain methodologies and work applications.

Organizing:

- > Organize and manage oneself and one's activities responsibly and effectively in order to ensure that Supply Chain Management is effectively used to enhance work productivity.

Collecting:

- > Collect, analyse, organize and critically evaluate information in order to assess risk factors associated with the Supply Chain, e.g. Inventory risks, efficiency risks and procurement risks.

Communicating:

- > Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written persuasion, e.g. through advising and motivating others with regard to service delivery issues.

Science:

- > Use Science and technology effectively and critically, showing responsibility to the environment and health of others, e.g. use appropriate computer software for data capturing and document storage purposes.

Demonstrating:

- > Demonstrate an understanding of the world as a set of interrelated systems by recognizing that problem-solving contexts do not exist in isolation, e.g. in keeping in mind that the strength of the chain depends on the weakest link.

Contributing:

- > Participating as responsible citizens in the life of local, national and global communities, e.g. acting as custodian of ethical behaviour and maintaining a high Level of commitment to providing effective and efficient services to the community.

ASSOCIATED ASSESSMENT CRITERIA

Fundamental component

1.

- > The essential vocabulary used in Inventory control is understood and used correctly in the work context orally and in writing.
- > The basic principles of inventory management are understood and applied appropriately in the work

situation,

- > Basic methods of planning and controlling inventory are used consistently in manufacturing, institutions, distribution, and retail environments.
- > Current and evolving technologies of inventory management are examined to determine which are **most** suitable to the organisation.
- > Stock selection is made and stock quantities are determined using the technology and techniques of inventory management that are most suitable for the organisation in question.

2.

- > Basic planning principles are understood by **way** of providing practical examples for a specific organisation.
- > The need for planning at all levels in an organisation is understood in terms of both **tactical** and strategic planning related to inventory control and supply chain management.
- > Problem-solving skills and techniques are used to solve real and simulated problems related to supply chain management and planning.

3.

- > Systems to produce goods and services are designed to ensure customer satisfaction and organisational profitability.
- Range: Includes but is not limited to: Total Quality Management systems, facilities planning and **use**, project management and planning, operations resource management, cost analysis.
- > Operations management systems are implemented, **according** to organisational plans and objectives and problems are identified and remedial action designed and implemented to **minimise** their **effect**.
 - > The relationship between the different sections and/or operations in and organisation are explained giving an indication of their interdependence,

Core Component

4.

- > Identify and solve problems with the supply and demand of aggregate inventory.
 - > Communicate effectively with all trade partners in Supply Chain Management.
- Range: Trade partners will include but not limited to; purchasing, operations, sales and marketing, finance, product development, distribution and customers and suppliers.

5.

- > The purpose of conducting a market analysis to determine market potential and **to** direct the operations **of** an organisation to ensure its profitability and sustainability is explained using examples from specific organisations.
- > The purpose of completing a Master Production Schedule according to international requirements **is** explained **by** emphasizing the advantages of using it and the potential problems associated with not using it.

6.

- > The purpose and need for Inventory management techniques are understood by providing **examples**.
- > Materials Requirement Planning Charts and **re-order** recommendation reports are understood and used **in** real or simulated environments.
- > The use of safety stock to support customer service **is** understood by providing examples.

7.

- > The purpose and need for priority planning are explained with examples.
- > Production schedules are defined and established for an organisation to meet organisational objectives.
- > Production schedules are generated and maintained to ensure correct supply of **stock** and materials **at all** times.
- > Valid and reliable schedules based on demonstrated and rated capacity are **understood** and drawn up for an organisation.
- > Forward and backward schedules are explained with examples.

8.

- > Methods and techniques to align resources with the strategic plan is explained with examples **of good practice**.
- > The way in which performance measurements are used **to** align competitive advantage and productive behaviour patterns is explained using examples of **good practice**.
- > The roles and responsibilities of individuals in successfully implementing change in an organisation are explained with an emphasis on what happens if they are not executed according to plan.
- > Recommendations for Supply Chain strategy and policy development are provided **to ensure** organisational sustainability.

9.

- > Factors that can change an organisation's competitive position are explained with examples of both positive and negative factors.
- > Specific strategic and operational situations as well as the alignment and integration with other supply chain management processes and other emerging concepts are understood by providing examples.
- > The process of organisational change and the tools used to gain employee commitment is explained with examples.
- > Recommendations are clearly and concisely documented and presented in a form to facilitate decision.
- > Knowledge and understanding of the theory and practice of strategic planning is demonstrated while participating in Supply Chain strategic planning activities.

Elective component

10.

- > Methods of calculating safety stock are determined by statistical variation in warehouse demand and agreed service levels are understood by providing examples.
- > The Push and Pull systems of managing distribution are explained with examples.
- > Methods of how to operate a fixed planning and manufacturing cycle are demonstrated with the use of a timetable.
- > Methods to improve service levels and/or simultaneously reduce stock, work in process and obsolescence are understood and applied according to organisational requirements.

OR

11.

- > The essential vocabulary used in Lean philosophies is explained and used orally and in writing in a work context.
- Range: Lean philosophies include but not limited to Just In Time, Six Sigma, Quality Management.
- > The philosophies of Lean manufacturing are understood and applied in the work situation.
- > Continuous improvement methodologies are understood and applied in the workplace according to requirements.
- > Current and evolving philosophies of Lean operating are examined to determine which are most suitable for the organisation.
- > The production principles and materials logistics are understood by providing practical examples.

Integrated Assessment

Integrated assessment at the level of the Qualification provides an opportunity for learners to show they are able to understand the knowledge and application necessary to make a decision to enter Supply Chain Management and deal with issues across a range of contexts. Integrated assessment must evaluate the quality of observable performance as well as the thinking behind the performance.

Some assessment aspects will demand practical demonstration on site, while others may not. In some cases inference will be necessary to determine competence depending on the nature and context within which performance takes place.

The assessor will collect evidence of the learner's competence by:

- > Observing the learner on site.
- > Asking questions and initiating short discussions to test understanding.
- > Looking at records and reports.

Formative Assessment

Formative assessment takes place during the process of learning and assessors should use a range of assessment methods and tools that support each other to assess total competence. These tools may include but are not limited to the following:

- > In-situ (on-the-job) observations.
- > Role-play simulations.
- > Structured group discussions.
- > Knowledge tests, exams, case studies, projects, registers, logbooks, workbooks.
- > Verbal report backs (presentations).
- > Portfolios of evidence.
- > Projects.

- > Experiential learning.
- > Working in teams.
- > Scenario sketching.

The assessment method and or tools used by the assessor must conform to the following criteria:

- > It must be fair in a sense that it does not hinder or advantage the learner.
- > It must be valid in a sense that it measures what it intends to measure.
- > It must be reliable in a sense that it is consistent and delivers the same output across a range of learners.
- > It must be practical in a sense that it takes into account the available financial resources, facilities, equipment and time.

Summative Assessment

Summative assessment is carried out at the end of the learning programme to assess the acquired competencies of the learner and could take the form of an examination or a series of shorter tests.

INTERNATIONAL COMPARABILITY

In selecting countries for international comparison it is important to consider countries where the economic context in which the Qualification is to be used is similar to the South African context. Ideally, this Qualification should be compared to Qualifications from a country with a developed economy and a second developing country with an emerging economy in order to include contexts that have similarities to the South African situation.

This certification programme is written in 26 countries around the world.

The Qualifications in the following countries were researched to identify international Qualifications in Production and Inventory Management.

- > Singapore.
- > Malaysia.
- > United Kingdom.
- > United States of America.

Singapore

The following qualification from Singapore was looked at

- > Diploma in Materials Management - DMM:
 - > The DMM programme is specially designed to equip purchasing and materials professionals at corporate level with the knowledge and the skills required for managerial effectiveness. The primary focus of the programme is on the development of analytical skills and decision-making abilities so that these professionals would acquire new knowledge and skills in order to cope with such a turbulent environment.

This programme is designed for materials, logistics, supply and traffic management professionals such as materials managers, purchasing manager and buyers. Applicants must have five GCE 'O' Levels, Certificate in Purchasing/Materials Management, Diploma in Business Studies, Engineering or any qualification deemed to be equivalent by the Admission's Committee. Applicants should preferably have three years of working experience. Applicants who do not possess the above qualifications but deemed to have many years of managerial and supervisory experience may apply on a case-by-case basis.

The programme is of eighteen months duration. It consists of nine courses and a final project.

- > Principles of Purchasing.
- > Legal Aspects of Purchasing.
- > Production Planning and Control.
- > Quantitative Analysis of Business.
- > Financial and Managerial Management.
- > Operations Management.
- > Electronic Commerce/Materials Information Systems.
- > Principles of Economics.
- > Strategic Management.
- > Management Application Project.

The DMM is a continuous assessment through written assignments, special projects and examinations.

This ensures that actual application of concepts and knowledge coupled with professional experience will make learning more practical and relevant.
In terms of target learners, access to the qualification, programme content and time frame this qualification is similar to this National Diploma.

Malaysia

The following Malaysian Qualification was looked at:

- > Diploma in Production and Inventory Management* DPIM.
- > The DPIM is targeted at working adults interested in developing core competency in the body of knowledge relating to production and inventory management as well as supply chain management (SCM). The key objectives of DPIM are to provide the candidate with:
 - > Understanding the various functions within the production and inventory management.
 - > **Team-based** problem solving skills.
 - > Cross industry awareness.
 - > Standardisation of knowledge for effective communication.

This is a **one-year** programme targeted at practitioners who would like to have specialist knowledge in production and inventory management. **Candidates** will need to attend three groups of subject **matters and** may not necessarily **be** taken **in** a specific sequence.
In terms of target learners, programme content and time frame this qualification is similar to this National Diploma.

United Kingdom

The following Qualification from **the** United Kingdom was looked at:

- > Diploma in Production and Inventory Management.
- > The Diploma in Production and Inventory Management provides an education for the professional who is responsible for managing key aspects of operations in manufacturing and service industries and for the practitioner engaged in the day to day activities of production and inventory management. The Diploma is the only **course** in the UK, which offers such an educational experience.

It is a nationally recognised qualification awarded by the Institute of Operations Management (IOM), covering all aspects of **manufacturing/services** planning and control, the Diploma specifically addresses subjects such as master planning, material and capacity planning, inventory and logistics management, shop floor control and lean manufacturing. **It also** recognises the broader knowledge required of today's professionals and covers both general management principles, such **as** managing people, managing finance and managing other aspects that influence success, **as** well as addressing the wider business context, such as strategy, competitive advantage, resources and measuring performance.

The programme aims to provide a knowledge and understanding of the key aspects of operations management, together with an understanding of the internal and external factors that influence operational efficiency and the success of the business.
In terms of target learners, programme content and time frame this qualification is similar to this National Diploma.

United States of America

The following Qualification from the United States was looked at:

- > Certificate in Production and Inventory Control.
- > The Certificate in Production and Inventory Control is given in cooperation with the Los Angeles Chapter of the Association for Operations Management. It is offered both online, on campus and at company-sponsored sites.

The certificate **is** designed for those who wish to gain a broad education in the principles of supply chain management. Those already in the fields of production and inventory control, manufacturing, quality assurance, purchasing and procurement as well as those anticipating a career change will benefit from this practical training presented by professionals currently employed in the field. Topics covered include: supply chain management, detailed scheduling and planning, material requirements planning, capacity **requirements** planning, inventory management, supplier planning, procurement, operations execution and control, production processes, quality incentives, inventory control, master planning of resources, forecasting, master scheduling, strategic management of resources, and integrating operating processes into the strategic plan.

Each of the five courses making up the certificate is thirteen weeks in length giving a total course time of 65

weeks. The certificate is fully accredited by the Western Association of Schools and Colleges (WASC), the western member of a nationwide network of educational accrediting bodies.

Each course in the programme grants three semester units of upper division degree applicable credit accepted by most universities and colleges. Determination regarding acceptance of transfer credit is at the discretion of each individual college or university.

In terms of target learners, programme content and time frame this qualification is similar to this National Diploma.

ARTICULATION OPTIONS

This Qualification articulates horizontally with the following Qualifications:

- > National Diploma: Complex Procurement: NQF level 5 - ID49469.
- > National Certificate: Management and Administration: NQF level 5 - ID49126.
- > National Diploma: Freight Forwarding: NQF level 5 - ID22444.
- > National Certificate: Management: NQF level 5 - ID24493.
- > National Diploma: Freight Handling Logistics: NQF level 5 - 1014590.

This Qualification could articulate vertically into Qualifications in Management, Logistics, Supply Chain Management and Administration at NQF level 6.

MODERATION OPTIONS

- > Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- > Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- > Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQA's policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQA's (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- > Moderation must include both internal and external moderation of assessments at exit points of the Qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the Qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

The following criteria should be applied by the relevant ETQA:

- > Relevant logistics Qualification at NQF level 5 or higher.
- > Minimum of 3 years' experience.
- > Registration as an assessor with the relevant ETQA.

NOTES

NIA

UNIT STANDARDS

(Note: A blank space after this line means that the qualification is not based on Unit Standards.)