No. 830

6 August 2004



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

Manufacturing and Assembly Processes

Registered by NSB 06. Manufacturing, Engineering and Technology, publishes the following qualification and unit standards for public comment.

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

Comment on the unit standards should reach SAQA at the address *below and no later than* 6 August 2004. All correspondence should be marked Standards Setting – Manufacturing and Assembly Processes and addressed to

The Director: Standards Setting and Development SAQA Attention: Mr. D Mphuthing Postnet Suite 248 Private Bag X06 Waterkloof 0145 or faxed to 012 – 431-5144 e-mail: <u>dmphuthing@saga.co.za</u>

JOE SAMUELS DIRECTOR: STANDARDS SETTING AND DEVELOPMENT



QUALIFICATION:

Further Education and Training Certificate: Manufacturing and Assembly Logistics (M&AL)

SAQA QUAL ID	QUALIFICATION TITLE									
48962	Further	Further Education and Training Certificate: Manufacturing and Assembly Logistics								
SGB NAME	SGB Manufacturing and Assembly Processes									
NSB ACRONYM			PROVIDER	NAME						
NSB 06										
QUAL TYPE	FI	ЕЦD				SUBFIELD				
National Certification	te	Ma	anufacturing,	Engineering an	d Technology	Manufacturing and Assembly				
ABET BAND	МІ	NIMU	M CREDITS	NQF LEVEL	QUALIFICA	TION CLASS				
Undefined	15	5		Level 4	Regular-Unit	Stds Based				

PURPOSE OF THE QUALIFICATION

The purpose of the qualification is to provide learners, education and training providers and employers with the standards and the range of learning required to work effectively within a manufacturing, assembly and process logistics environment and meet the challenges of such an environment.

The chief skills that are recognised in this qualification are:

> Communicate and present information clearly and reliably and demonstrate the ability to analyse

information to identify problems and determine trends.

> Warehouse manufacturing and assembly inventory.

> Determine material requirements.

> Plan, schedule and monitor production and solve operational problems.

> Promote, implement and maintain procedures that support safety, health, the environment, quality and risk management including reporting to and coaching team members.

> Demonstrate an understanding of options for further learning in this or a related field of learning and preparation requirements for such learning.

These skills require an in-depth understanding of manufacturing, parts and accessories manufacturing and distribution processes.

Rationale for the qualification:

Manufacturing and Assembly Logistics is characterised by extensive planning, scheduling and monitoring processes conducted within the competitive and challenging environment of manufacturing, assembly and process. These planning and monitoring services rendered to the larger manufacturing sector ensure that parts, accessories and consumables are available at the production lineside and consumption points on a "just-in-time (JIT) basis". On-going development of new products as the result of constantly changing customer needs and environmental issues require these industries to respond to quality issues and increasing competition in export and domestic markets.

This means that people working in manufacturing, assembly and process logistics operations require a range of skills and knowledge that will help them respond to the exacting quality requirements and ongoing change.

This is one of a series of qualifications for learners who want to follow a Manufacturing and Assembly

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Logistics career in the manufacturing and assembly processes, local and export supply industry and parts and accessories sectors.

For those who have been in this type of environment for a long time, this qualification represents part of an RPL process to acknowledge workplace skills acquired without the benefit of formal education or training.

The qualification also forms the basis for further development within manufacturing, assembly and process logistics and the management thereof in the higher education and training band.

RECOGNIZE PREVIOUS LEARNING?

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LEARNING ASSUMED TO BE IN PLACE

This qualification assumes learners have a National Certificate in Procurement, Logistics and Supply Chain Management at NQF Level 3 or equivalent.

If the learner does not already have such a qualification, learning in preparation for this qualification would also have to include:

> Communication, mathematics and physical science at NQF level 3.

> Basic computer end-user skills at NQF Level 2 or equivalent:

> Understanding of manufacturing assembly and process, parts and accessories manufacturing and distribution assess at NQF Level 3 or equivalent.

Recognition of prior learning:

This qualification may be obtained through a process of RPL. The learner should be thoroughly briefed prior to the assessment and support provided to assist in the process of developing a portfolio. While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes.

QUALIFICATION RULES

N/A

EXIT LEVEL OUTCOMES

1. Promote, implement and maintain procedures that support safety, health, the environment, quality and risk management including reporting to and coaching team members.

2. Communicate and present information clearly and reliably and demonstrate the ability to analyse information to identify problems and determine trends.

3. Understand and apply Manufacturing and Assembly Process logistics planning in terms of producing manufacturing and assembly material schedules.

Range:

> 3- Level Bill of material.

> Minimum of 10 items of materials.

4. Demonstrate an ability to develop production schedules for manufacturing and/or assembly plants with up to 3 final / end products.

5. Understand and apply warehouse principles and processes.

6. Demonstrate an understanding of options for further learning in this or a related field of learning and preparation requirements for such learning.

ASSOCIATED ASSESSMENT CRITERIA

1.

> Safety, health, environmental quality and risk management procedures in area of responsibility are implemented and updated where required.

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> Team members are working in a safe and environmentally aware manner.

> Team members are coached where required.

> Safety, health, environmental, quality and risk management practices are investigated systematically and suggestions for improvement made as appropriate.

> All actions related to maintaining safety, health, environmental, quality and risk management procedures are documented.

2.

> Conditions, evidence and incidences are reported accurately in a timely manner and discussed with peers and management.

> Data gathered through diagnostic procedures is examined systematically and analysis is repeated until problem is solved.

> Records are available for scrutiny and future reference.

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> Determine supply chain capacity and constraints.

> Establish individual lead times and agree on time frames as these relate to the organisations demands.

> Produce material requirement schedules that relate to the requirements of the business unit.

4.

> Scheduled and monitor production against critical parameters.

> Identify non-conformances and achievements and take appropriate corrective action to minimise reoccurrence.

> Report production achievements accurately and timeously to affected parties.

5.

> Verify material inventories, identify product and quality deviations and take appropriate corrective action to minimise reoccurrence.

> Receive materials and verify against orders and store / warehouse as per manufacturers / suppliers requirements considering all safety requirements.

> Accurately fill material requisitions and determine and confirm stock availability.

> Despatch material to consumer as per requisition / order.

6.

> Options are explained.

> Preparation requirements are explained.

> Learning plan is developed.

Integrated Assessment:

The integrated assessment must be based on a summative assessment guide. The guide will spell out how the assessor will assess different aspects of the performance and will include:

> Observing the learner at work (both in the primary activity as well as other interactions).

> Asking questions and initiating short discussions to test understanding.

> Looking at records and reports in the portfolio and reviewing previous assessments.

The learner may choose in which language s/he wants to be assessed. This should be established as part of a process of preparing the learner for assessment and familiarising the learner with the approach being taken.

While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes.

The assessment process should cover both the explicit tasks required for the qualification as well as the understanding of the concepts and principles that underpin the activities and the manufacturing process. The assessment process should cover both the explicit tasks required for the qualification as well as the understanding of the concepts and principles that underpin the activities required for manufacturing and assembly logistics. The assessment process should also establish how the critical outcomes have been advanced by the learning process.

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INTERNATIONAL COMPARABILITY

This qualification was compared to other, similar outcomes-based qualifications, certifications or skills standards in Australia and New Zealand, including New Zealand's National Certificate in Logistics Operations NQF Level 4 and National Diploma in Logistics Operations NQF Level 5. It was found to be difficult to compare the New Zealand and Australian narrow focus qualifications with this broad-based qualification that also include fundamentals and generic core standards. It was further difficult to undertake such comparisons given that the New Zealand and Australian qualifications, although they are in the same field, are conceptualised without exit level outcomes. This notwithstanding, the technical content of these qualifications for manufacturing and assembly logistics, of which the highest qualification is at level 5, does correspond with the equivalent level of qualification in manufacturing and assembly logistics in Australia and New Zealand.

This qualification was also compared to logistics skills standards in the United States and this qualification broadly corresponds to these, with the same proviso that the United States skills standards do not make provision for exit levels below the equivalent of NQF level 4.

ARTICULATION OPTIONS

> The qualification has been designed and structured so that qualifying learners can move from one context to another e.g. Level 5 Diploma in Logistics and any other level 4 Qualification in Manufacturing.

> Employers or institutions should be able to evaluate the outcomes of this qualification against the needs of their context and structure top-up learning appropriately.

> Equally holders of other similar qualifications may be evaluated against this qualification for the purpose of RPL.

MODERATION OPTIONS

Moderators for the qualification should be qualified and accredited with an appropriate ETQA and have a qualification in Logistics Operations.

To assure the quality of the assessment process the moderation should cover one or more of the following:

> Assessor credentials.

> The assessment instrument.

> The assessment process (including preparation and post-assessment feedback).

Where assessment and moderation are taking place in sectors other than the Manufacturing, Engineering and Related Services, assessment and moderation should be in terms of a Memorandum of Understanding negotiated with the relevant ETQA.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

The following criteria should be applied by the relevant ETQA:

- 1. Appropriate qualification in the field of manufacturing and/or assembly logistics at or above level 4.
- 2. Appropriate experience and understanding of assessment theory, processes and practices.
- 3. Good interpersonal skills and the ability to balance the conflicting requirements of:
- > Maintaining national standards.
- > The interests of the learner.
- > The need for transformation and redressing the legacies of the past.
- > The cultural background and language of the learner.
- 4. Registration as an assessor with the relevant ETQA.
- 5. Any other criteria required by the relevant ETQA.

NOTES

N/A

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UNIT STANDARDS

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

	UNIT STANDARD ID AND TITLE	LEVEL	CREDITS	STATUS
Core	9243 Monitor occupational health & safety	Level 4	8	Registered
Core	10135 Work as a project team member	Level 4	8	Registered
Core	116280 Demonstrate understanding of warehouse manufacturing and inventory assembly	Level 4	20	Draft - Prep for P Comment
Core	116284 Solve operational problems in a manufacturing / assembly context	Level 4	10	Draft - Prep for P Comment
Core	116287 Schedule and monitor production	Level 4	12	Draft - Prep for P Comment
Core	116292 Demonstrate an understanding of the principles of Manufacturing and Assembly logistics planning	Level 4	12	Draft - Prep for P Comment
Core	116294 Determine manufacturing and assembly material requirements	Level 4	12	Draft - Prep for P Comment
Elective	9533 Use communication skills to handle and resolve conflict in the workplace	Level 3	3	Registered
Elective	13234 Apply quality procedures	Level 3	8	Registered
Elective	114932 Explain how to manage diversity in the workplace	Level 3	2	Registered
Elective	12455 Perform the role of a safety, health and environmental protection representative	Level 4	3	Registered
Elective	12544 Facilitate the preparation and presentation of evidence for assessment	Level 4	4	Registered
Elective	114877 Formulate and implement an action plan to improve productivity within an organisational unit	Level 4	8	Registered
Elective	13925 Present information in a public setting	Level 5	5	Registered
Elective	15219 Develop and implement a strategy and action plans for a team, department or division	Level 5	4	Registered
Elective	15224 Empower team members through recognising strengths, encouraging participation in decision making and delegating tasks	Level 5	4	Registered
Fundamental	8968 Accommodate audience and context needs in oral communication	Level 3	5	Registered
Fundamental	8969 Interpret and use information from texts	Level 3	5	Registered
Fundamental	8970 Write texts for a range of communicative contexts	Level 3	5	Registered
Fundamental	8973 Use language and communication in occupational learning programmes	Level 3	5	Registered
Fundamental	7468 Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	Level 4	2	Registered
Fundamental	7784 Communicate in a business environment	Level 4	6	Reregistered
Fundamental	8974 Engage in sustained oral communication and evaluate spoken texts	Level 4	5	Registered
Fundamental	8975 Read analyse and respond to a variety of texts	Level 4	5	Registered
Fundamental	8976 Write for a wide range of contexts	Level 4	5	Registered
Fundamental	9015 Apply knowledge of statistics and probability to critically interrogate and effectively communicate findings on life related problems	Level 4	5	Registered
Funcamental	9016 Represent analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	Level 4	4	Registered
Funcamental	12417 Measter extimate & calculate physical quantities & explore, critique & prove geometrical relationships in 2 and 3 dimensional space in the life and workplace of adult with increasing responsibilities	Level 4	4	Reregistered

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UNIT STANDARD:

Demonstrate an understanding of the principles of Manufacturing and Assembly logistics planning

SAQA US ID	UNIT STANDARD TITLE								
116292	Demonstrate an understanding of the principles of Manufacturing and Assembly logistics planning								
SGB NAME		-	NSB ACRO	VYM	PROVIDER NAME				
SGB Manufac	ly Processes	NSB 06	NSB 06						
FIELD			SUBFIELD)					
Manufacturing	, Engineering and ⁻	Technology	Manufactu	ring ar	nd Assembly				
ABET BAND UNIT STAND		DARD TYPE NO		LEVEL	CREDITS				
Undefined	· · · · · · · · · · · · · · · · · · ·	Regular	· · · · · · · · · · · · · · · · · · ·	Leve	el 4	12			

Specific Outcomes:

SPECIFIC OUTCOME 1

Demonstrate an understanding of the interfaces and interactions of a manufacturing and assembly stra

SPECIFIC OUTCOME 2

Identify critical issues relating to strategic planning.

SPECIFIC OUTCOME 3

Demonstrate an understanding of the Master Production Plan / Schedule (MPP / MPS) as an output of th

SPECIFIC OUTCOME 4

Demonstrate an understanding of the uses of the Master Production Plan / Schedule (MPP / MPS).

SPECIFIC OUTCOME 5

Demonstrate an understanding of the importance of the customer in the business process chain (intern



UNIT STANDARD:

Demonstrate understanding of warehouse manufacturing and inventory assembly

SAQA US ID	UNIT STANDARD TITLE							
116280	Demonstrate understanding of warehouse manufacturing and inventory assembly							
SGB NAME			NSB ACRON	VYM	PROVIDER NAME			
SGB Manufact	turing and Assembly	Processes	NSB 06					
FIELD			SUBFIELD)				
Manufacturing	, Engineering and Te	chnology	Manufactur	ing ar	nd Assembly			
ABET BAND UNIT STAND			ARD TYPE	NQF	LEVEL	CREDITS		
Undefined	R	legular		Leve	l 4	20		

Specific Outcomes:

SPECIFIC OUTCOME 1

Receive material and transact receipt.

SPECIFIC OUTCOME 2

Route received material to designated storage area and store / warehouse.

SPECIFIC OUTCOME 3

Pick and supply material.

SPECIFIC OUTCOME 4

Audit inventory accuracy.

SPECIFIC OUTCOME 5

Apply reverse logistics.



UNIT STANDARD:

Determine manufacturing and assembly material requirements

SAQA US ID	UNIT STANDARD TITLE							
116294	Determine manufacturing and assembly material requirements							
SGB NAME			NSB ACROI	VYM	PROVIDER NAME			
SGB Manufact	facturing and Assembly Processes NSB 06							
FIELD			SUBFIELD)				
Manufacturing	Engineering and	Technology	Manufactu	ring a	nd Assembly			
ABET BAND	ABET BAND UNIT STANL			NQF	LEVEL	CREDITS		
Undefined		Regular		Level 4		12		

Specific Outcomes:

SPECIFIC OUTCOME 1

Identify the inputs into Material Requirements Planning (MRP).

SPECIFIC OUTCOME 2

Calculate basic material requirements.

SPECIFIC OUTCOME 3

Demonstrate an understanding of inventory in raw material, Work in Progress (WIP) and finished goods

SPECIFIC OUTCOME 4

Discuss and explain the material requirements planning and inventory processes.



UNIT STANDARD:

Schedule and monitor production

SAQA US ID	UNIT STANDARD TITLE							
116287	Schedule and monitor production							
SGB NAME		NSB ACRONYM		PROVIDER NAME				
SGB Manufac	turing and Assembl	y Processes	NSB 06					
FIELD		SUBFIELD						
Manufacturing	, Engineering and T	Fechnology	Manufactu	ring ar	nd Assembly			
ABET BAND	D UNIT STANE		ARD TYPE NQI		LEVEL	CREDITS		
Undefined		Regular		Leve	4	12		

Specific Outcomes:

SPECIFIC OUTCOME 1

Prepare for detailed scheduling activity.

SPECIFIC OUTCOME 2

Schedule production.

SPECIFIC OUTCOME 3

Monitor production.

SPECIFIC OUTCOME 4

Identify non-conformances, determine their cause and take corrective action.

SPECIFIC OUTCOME 5

Report production achievements.

SPECIFIC OUTCOME 6

Discuss and explain the detailed production scheduling and monitoring process.



UNIT STANDARD:

Solve operational problems in a manufacturing / assembly context

SAQA US ID	UNIT STANDARD TITLE							
116284	Solve operational problems in a manufacturing / assembly context							
SGB NAME			NSB ACRO	NYM	PROVIDER NAME			
SGB Manufact	uring and Assemb	ly Processes	NSB 06			· · · · · · · · · · · · · · · · · · ·		
FIELD	an a	·	SUBFIELD)	·····			
Manufacturing	, Engineering and	Technology	Manufactu	ring ar	nd Assembly			
ABET BAND UNIT STAND			ARD TYPE NQI		LEVEL	CREDITS		
Undefined	· · · · · · · · · · · · · · · · · · ·	Regular	· · · · · · · · · · · · · · · · · · ·	Leve	4	10		

Specific Outcomes:

SPECIFIC OUTCOME 1

Define and analyse the operational problem.

SPECIFIC OUTCOME 2

Identify possible solutions.

SPECIFIC OUTCOME 3

Implement solution.