No. 409 11 May 2007

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

Engineering

registered by Organising Field 06 – Manufacturing, Engineering and Technology, publishes the following qualification for public comment.

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

Comment on the qualification should reach SAQA at the address below and ***no later than 11 June 2007.*** All correspondence should be marked Standards Setting – Engineering and addressed to

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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

SAQA

QUALIFICATION:

National Certificate: ***Lifting*** Machine ***Inspection***

SAQA QUAL ID	***QUALIFICATION TITLE***		
58496	National Certificate: Lifting Machine Inspection		
SGB		***PROVIDER***	
SGB Engineering			
ETQA			
QUALIFICATION TYPE	***FIELD***	***SUBFIELD***	
National Certificate	6 - Manufacturing, Engineering and Technology	Engineering and Related Design	
ABET BAND	***MINIMUM CREDITS***	***NQF LEVEL***	***QUAL CLASS***
Undefined	120	Level 5	Regular-ELOAC

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

This qualification is aimed at people who work or intend to work within the lifting machinery industry, and who seek recognition for essential skills in lifting machine inspection.

Recipients of this qualification know about and are able to conduct lifting machine inspections to ensure safe conditions of these machines.

The qualification is designed to be flexible and accessible so that people are able to demonstrate the competencies required to work safely in the lifting machinery industry.

People credited with this qualification are able to:

- Communicate in the workplace.
- Compile and maintain work schedules.
- Apply engineering skills in the workplace.
- Comply with relevant legislation in the workplace.
- Inspect lifting machinery and equipment.

Rationale:

The South African legislation specifies that all lifting machines must be inspected at prescribed intervals by a registered lifting machine inspector. This qualification provides a learner with all the skills and knowledge required of a lifting machine inspector and may be seen as a pathway towards registration as a lifting machine inspector.

The majority of the candidates for this qualification are likely to be working in the lifting machinery or engineering industry. This qualification will give them the opportunity to balance their practical skills with the essential knowledge needed to earn a formal qualification in lifting machine inspection without formal education becoming an impassable barrier.

There is a critical need in the industry to identify people who are able to conduct the essential operations associated with efficient and safe lifting machine inspection. This will lead to competence in the field of work and thereby add safety and value to the industry and improve

the economy of the country. It will also lead to a balanced society in that learners will understand how the work they do fits into the greater engineering industry.

RECOGNIZE PREVIOUS LEARNING?
Y

LEARNING ASSUMED TO BE IN PLACE
It is assumed that learners are already competent in:

- Communication and Mathematical Literacy at NQF Level **4.**
- Knowledge of engineering practices.

Recognition of Prior Learning:

This qualification can be achieved wholly or in part through recognition of prior learning in terms of the defined exit level outcomes, but training providers must take full responsibility for assessing the exit level outcomes.

Evidence can be presented in various ways, including international and/or previous local qualifications, products, reports, testimonials mentioning functions performed, work records, portfolios, videos of practice and performance records.

All such evidence will be judged in accordance with the general principles of assessment described above and the requirements for integrated assessment.

Access to the Qualification:

Access to this qualification **is** open bearing in mind learning assumed to be in place

QUALIFICATION RULES
For award of the whole qualification, learners must achieve competence against all the criteria as specified in the Exit Level Outcomes.

EXIT LEVEL OUTCOMES
1. Communicate in the workplace

2. Compile and maintain work schedules.

3. Explain and apply engineering skills to the workplace.

4. Comply with relevant legislation in the workplace

5. Inspect lifting machinery and equipment.
o Range: Learners will be assessed against lifting tackle and at least one of the following categories:
- Chain hoists.
- Work platforms.
- Jib cranes.
- Tower cranes.
- Overhead cranes.
- Mobile cranes.
- Lift Trucks.
- Vehicle hoists.

This qualification addresses the following Critical Cross-Field Outcomes:

• Identifying and solving probiems in which responses indicate that responsible decisions Using critical and creative thinking have been made.
o Evident in Exit Level Outcome/s 2, 3, 5.

• Working effectively with others as a member of a team, group, organisation or community
o Evident in Exit Level Outcomeis 1, 2, **4,** 5.

• Organising and managing oneself and one's activities responsibly and effectively
o Evident in Exit Level Outcomeis 2, 3, 5.

• Collecting, anaiysing, organising and critically evaluating information
o Evident in Exit Level Outcomels 1, 2, 3. 5.

• Communicating effectively using visual, mathematical and/or language skills in the modes of oral/written persuasion.
o Evident in Exit Level Outcomeis 1, 2, 5.

• Using science and technology effectively and critically, showing responsibility towards the environment and health of others.
c Evident in Exit Level Outcomels 1, 2, 3, 5.

• Dernonstraiing and understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.
o Evident in Exit Level Outcome/s 2, 3, 5.

• Learning programmes directed towards this qualification will also contribute to the full personal development of each learner and the social and economic development of society at large. by making individuals aware of the importance of:

• Reflecting on and exploring a variety of strategies to learn more effectively.
• Participating as responsible citizens in the life of local, national and global communities.
• Being culturally and aesthetically sensitive across a range of social contexts.
• Exploring education and career opportunities; and developing entrepreneurial opportunities

ASSOCIATED ASSESSMENT CRITERIA

1.
• Reports are generated from available data.
• Data is in accordance with the relevant needs of target audiences.
• Oral communication is suited to the work context.
• Written communication is clear and unambiguous and at an appropriate level for designated target audiences.

2.
• Scheduling is described in terms of its purpose and process.
• Project activities are defined in terms of the required project outcomes.
• Project plans are compiled in terms of identified activities.
• Activities are sequenced in terms of workflow and timelines.
• Activities are reported on in accordance with workplace requirements.
• Paperwork is recorded and stored in accordance with workplace requirements.
• Work activities are completed in accordance with agreed timeframes and efficiency

3.
• Flow characterisiics are explained in terms of engineering principles.
• Measurement of flow is explained and applied in terms of fluid principles.
• Ferrous and non-ferrous metals and alloys are explained in terms of their properties and uses.

- Thermo plastics and thermosetting plastics are explained in terms of their properties and uses
- Machining and fabrication principles are explained and applied in terms of functions and accuracy.
- Work functions are explained in terms of quality in engineering practice.
- Engineering risks are identified in terms of the potential impact for each risk on the project.
- Actions to improve work functions are identified and analysed in terms of available options.
- Recommendations are communicated to relevant personnel in accordance with workplace requirements.

4.

- Legislation relevant to the work activities is identified and accessed in accordance with workplace requirements.
- Legislation is interpreted in terms of the applicability to required work activities.
- The implications of non-compliance with legislation is explained in terms of work processes and penalties.
- Inspection reports are generated in terms of work activities.

5.

- Inspection activities are planned in accordance with the inspection required and the workplace requirements.
- The purpose of conducting various tests is explained in terms of relevant legislation and user safety standards.
- inspection and testing equipment selected is appropriate to the inspection required.
- Authorisation to conduct inspection activities is obtained in accordance with workplace procedures.
- The work area is prepared for the relevant inspection in accordance with inspection requirements.
- Defects and potentially hazardous conditions are identified and corrected in accordance with workplace requirements.
- Pubiic access to the worksite is restricted in accordance with statutory requirements and worksite procedures.
- Machinery and equipment is inspected and tested in accordance with test schedules and relevant safety standards.
- Deviances from acceptable standards are identified and reported to the relevant stakeholder in accordance with statutory requirements and manufacturer specifications.
- The consequences of omitting any part of the inspection and testing schedule are explained in terms of potential risks and liability.
- The worksite is cleared, secured and restored to a safe and serviceable condition in accordance with statutory and worksite requirements.
- Work activities are completed within agreed timeframes. The importance of completing activities in these timeframes is explained in terms of customer service and work interruptions.

Assessment Principles:

Assessment should be in accordance with the following general and specific principles:

- The initial assessment activities should focus on gathering evidence in terms *of* the main outcomes expressed to ensure assessment is integrated rather than fragmented. Where assessmeni at the broader level is unmanageable, then the assessment can focus on each assessment criterion, or groups of assessment criteria.

- Evidence must be gathered across the entire range specified in each Exit Level Outcome, as applicable. Assessment activities should be as close to the real performance as possible, and where simulations or role-plays are used, there should be supporting evidence to prove that the candidate is able to perform in the real situation.

• All assessments shoula be conducted in accordance with the following universally accepted principles of assessment:
c Use appropriate, fair and manageable methods that are integrated into real work-related or learning siiuations.
o Judge evidence on the basis of its validity, currency, authenticity and sufficiency.
c Ensure assessment processes are systematic, open and consistent.

INTERNATIONAL COMPARABILITY

This qualification and the component unit standards have been compared with various countries and it nas been found that South Africa and Australia are the only countries to have qualifications for Lifting Machine Inspectors. The Australian qualification is very similar to this one, except that no commercial input is included.
in essence, most other countries focus on their Occupational Health and Safety Acts, which specify the requirements for inspecting lifting equipment, and allow anyone with the relevant experience io conduct the inspections required. There are also ISO specification documents in existence regarding the competency requirements for a crane inspector, which the inspector would have to comply with prior to qualifying. ISO/wd **N249** rev.2 ISO inspection criteria for specific crane disciplines have also been compiled.

Together with these first two documents, ISO is already in the drafl stage of a document specifying the criteria required of an inspector which would be necessary to comply with to become an inspector. Combined together with the pertinent countries laws, it is surmised that these documents will form the basis of what the European countries will be adopting in the near future.

The content of the ISO document is very similar to this qualification from a technical perspective, with the exception of the omission *of* commercial criteria that has been included in this qualification.

In particular:

Europe:

Since the inception of the European Union, most of their members who in the past have applied their local requirements for LMI's, are now moving to adopt the ISO format.

USA:

The USA do not have a national or federal requirement/qualification, because like many other components of their economy, responsibility resides with the local state and their variety of interpretations of laws. As a result most states apply the ANSI standards for inspectors. However they are not regulated properly but are requested by state laws to take responsibility for inspections. The training and qualification for a LMI is offered commercially by a registered training institution with the local state education authority. Examples of these can be found on commercial web sites.

African neighbours:

Our neighbouring countries adopt South African standards where possible. However the SADC countries have opted to adopt ISO as their standards for the future, which means they might attempt to follow the European approach. To date it looks like they will only **use** ISO standards and specifications and will not venture into actual qualifications based on ISO documents. When our neighbours have a requirement or problem, they engage South Africans with the necessary expertise to come to their rescue.

The rest of Africa:

As far as East and West Africa are concerned, the countries have little or no regulation and/or qualification for LMI's. Their own OSH acts are virtually non existent. However in most of these countries most large economic activity is driven by foreign countries, financially and physically. The locals are then contractually obliged to conform to their principal's code of practice which includes LMI requirements. These again come mainly from Europe or the USA, and these countries have been discussed.

ARTICULATION OPTIONS

The qualification allows for both horizontal and vertical articulation.

Vertical articulation can occur with:

- ID 58496: National Diploma in Machinery Inspection, NQF Level 5.

Horizontal articulation can occur with.

- ID 49061: National Certificate in Master Craftsmanship, NQF Level 5.

MODERATION OPTIONS

- Providers offering learning towards achievement of any of the outcomes that make up this qualification must be accredited through the Engineering Council of SA.

- Internal moderation of assessment must take place at the point of assessment with external moderation provided by the relevant ETQA in conjunction with the Lifting Machinery Industry, according to the moderation guidelines and the agreed ETQA procedures.

- Providers of programmes shall in the quality assurance process demonstrate that an effective moderation process exists to ensure that the assessment system is consistent and fair.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Registration of assessors is delegated by the Higher Education Quality Committee to the Higher Education providers responsible for delivering learning programmes. The following criteria are specified for assessors concerning the technical aspects of the qualification:

- An appropriate qualification with at least 5 years practical experience in a lifting machinery environment.
- Appropriate experience and understanding of assessment theory processes and practices.
- Good interpersonal skills and ability to balance the conflicting requirements of the interests of the learner, the provider and the employer.

NOTES

NIA

UNIT STANDARDS

This qualification is not based on Unit Standards.