



Government Gazette Staatskoerant

REPUBLIC OF SOUTH AFRICA
REPUBLIEK VAN SUID-AFRIKA

Vol. 441

Pretoria, 8 March
Maart 2002

No. 23199



AIDS HELPLINE: 0800-0123-22 Prevention is the cure

CONTENTS • INHOUD

No.

Page
No. Gazette
No.**GOVERNMENT NOTICES****South African Qualifications Authority***Government Notices*

258	National Standards Bodies Regulations: Standards Generating Body (SGB) for Lumber Milling registered by NSB 01, Agriculture and Nature Conservation.....	3	23199
259	National Certificate in Saw Doctoring NQF Level 2.....	13	23199
260	National Certificate in Saw Doctoring NQF Level 3.....	25	23199
261	National Certificate in Saw Doctoring NQF Level 4.....	40	23199
262	National Certificate in Lumber Drying NQF Level 1	52	23199
263	National Certificate in Lumber Drying NQF Level 2	61	23199
264	National Certificate in Lumber Drying NQF Level 3	74	23199
265	National Certificate in Lumber Drying NQF Level 4	85	23199
266	National Certificate in Dry Lumber Processing NQF Level 1	96	23199
267	National Certificate in Dry Lumber Processing NQF Level 2	107	23199
268	National Certificate in Dry Lumber Processing NQF Level 3	119	23199
269	National Certificate in Dry Lumber Processing NQF Level 4	134	23199
270	National Standards Bodies Regulations: Standards Generating Body (SGB) for Sport, Recreation and Fitness registered by NSB 02, Arts & Culture	145	23199
271	National Certificate in Fitness	161	23199
272	National Standards Bodies Regulations: Standards Generating Body (SGB) for Manufacturing and Assembly registered by NSB 06, Manufacturing, Engineering and Technology	171	23199
273	National Diploma in Manufacturing Management: Food and Beverage Manufacturing Management NQF 6.....	178	23199
274	Public notice by NSB 06, Manufacturing, Engineering and Technology to register SGB for manufacturing and Assembly Processes from NQF Levels 1–6.....	185	23199

GOVERNMENT NOTICES

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

No. 258

8 March 2002

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

Lumber Milling

Registered by NSB 01, Agriculture and Nature Conservation publishes the following qualifications for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purposes of the qualifications, and the titles and specific outcomes of the unit standards upon which qualifications are based. The full qualifications and unit standards 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, 659 Pienaar street, Brooklyn, Pretoria.

Comment on the unit standards should reach SAQA at the address ***below and no later than 01 April 2002***. All correspondence should be marked **Standards Setting – SGB Lumber Milling** and addressed to

<p>The Director: Standards Setting and Development SAQA Attention: Mr. D Mphuthing Postnet Suite 248 Private Bag X06 Waterkloof 0145 or faxed to 012 – 482 0907</p>



12 SAMUEL B.A. ISAACS
EXECUTIVE OFFICER

NATIONAL CERTIFICATE IN SAW DOCTORING NQF LEVEL 1

Field: Agriculture and Nature Conservation.

Sub-field: Forestry and Wood Technology.

Level: 1

Credit: 141

RATIONALE FOR THE QUALIFICATION

NOTE: Saw doctoring is the activity concerned with keeping all the cutting tools used in a lumber mill, e.g. saw blades, planer knives etc, in good working order. There are currently two basic types of sawing machines which typify individual South African lumber mills, which require different types of saw doctoring, i.e. Band-saws and Frame-saws. There is however no differentiation in the learning programme between the two for the learner at NQF Level 4

- The typical range of learners is the currently employed, unemployed and other persons, who want to enter a learning programme to obtain a National Certificate in Wood Technology: Lumber Milling (Saw Doctoring) at NQF Level 1, to start building a career path in this industry.
- These learners, once qualified, will be able to effectively and efficiently work as general workers/mill hands, individually or in teams, on tasks they are responsible for at this level in the **saw doctor shop in the lumber mill**.
- South African lumber millers are facing an increasing demand for better quality products at more competitive prices. This is leading to an increased demand for more knowledgeable and better skilled personnel to produce such products. Historically this industry experienced various forms of protection. Lumber mill personnel at the lower levels were only exposed to unplanned, periodic, ad-hoc learning programmes, which did not establish an appropriately trained workforce. All protection has now been removed. This industry is now part of the global market, and it must be competitive in price and quality to survive. It can only achieve this through improved knowledge and skills levels. The new education and training dispensation can deliver this. Therefore a demand, which will increase in the future.
- This qualification equips learners with identified competencies in knowledge and skills at NQF Level 1 and it provides a basis for further learning at NQF Level 2. The exit level outcomes, which embody these competencies in knowledge and skills are listed in paragraph 8 below. The fundamental outcomes as well as the non-industry specific core of the unit standards required at this level, also provide the learner with building blocks for a learning pathway outside this industry. The choice of electives allows the learner the option of continuing his/her learning in any of four other areas in the lumber milling field.
- The learning programme, which leads to this qualification, produces a person who is knowledgeable about and appropriately skilled in performing the relevant tasks in the saw doctoring area. Persons without any training or with another type of training, or persons who had undergone the ad-hoc type of training which was prevalent under the previous dispensation, will not be of the same quality for this work than a learner with this qualification
- Improved levels of knowledge and skills lead to greater ability to produce at more competitive costs and better quality, increased sales, greater profits, more personal income, which will impact favourably both on the society and the economy of the country.

PURPOSE OF THE QUALIFICATION

A learner acquiring this qualification will be able to operate as a knowledgeable and appropriately skilled mill hand (general worker), in an effective and efficient manner, either as a member of a working team or an

individual when required, performing the tasks prescribed for this level in the unit standards for processing tree stems into sawn lumber i.e. saw doctoring.

The learner will know and understand the general basics of lumber milling and the relevant details of saw doctoring. He/she will be able to perform the relevant tasks in this workplace to the prescribed standards, while correctly following the prescribed work procedures, and the health and safety and environmental protection measures applicable to the saw doctoring area. The learner will be able to interpret and comply with the prescribed aspects of certain legislation impacting on his/her work situation. The learner will be able to communicate effectively, orally or in writing, with co-workers and responsible persons in this workplace.

This qualification provides the qualifying learner with legal proof of having achieved prescribed levels of knowledge and practical competence, where up till the present time, this only existed for tertiary educated persons.

The learning programme that leads to this qualification improves the operating abilities and therefore the earning ability of the qualifier, which must contribute to the social and economic development of the country.

This qualification qualifies a person who has successfully demonstrated his/her knowledge levels and competence in the skills prescribed for Wood Technology: Lumber Milling (Saw Doctoring) for NQF Level 1, to enroll for an NQF Level 2 Learnership and Qualification in this domain. It ensures a foundation for a structured career path for the learner.

This Qualification forms part of the Learnership in Wood Technology: Lumber Milling (Saw Doctoring) (NQF Level 1), which, together with 3 other qualifications at this level, constitute the basis of the NQF for Wood Technology. It facilitates access to and mobility within learning pathway in Lumber Milling and other Wood Technology learning pathways.

This qualification supports the objectives of the National Qualification Framework regarding access, mobility and progression, quality of learning, redress of unfair discrimination and contribution to personal development and social and economic development of the nation.

ACCESS TO QUALIFICATION

There is open access to this qualification. This Qualification is achievable by any person who can demonstrate the knowledge and skills levels, required by the fundamental, core and elective unit standards on which this qualifications is based. Prospective learners do however have to note that certain tasks will be physically demanding.

LEARNING ASSUMED TO BE IN PLACE

It will be assumed that a learner who registers for this qualification, must have literacy, communication and mathematical skills equivalent to Grade 8 schooling or ABET Level 3.

EXIT-LEVEL OUTCOMES

The qualifying learner can:

Outcome 1

- Demonstrate the required level of knowledge and understanding of the general basics of lumber milling and the relevant details of **saw doctoring**, by describing these verbally or in writing, in a clear and understandable manner, using the correct wood technological terminology

Associated assessment criteria

- The description proves that the learner possesses the required level of knowledge and understanding of the subject field
- The description gives the correct details of the relevant aspects of lumber milling and **saw doctoring**
- The description is given in a clear and understandable manner

- The correct wood technological terminology is used

Outcome 2

- Perform the prescribed tasks of a mill hand (general worker), as a working team member or as an individual, in **saw doctoring**, showing the ability to co-operate, and understand and execute instructions.

Associated assessment criteria

- The procedures prescribed for the relevant tasks are applied correctly
- The outcomes of the performance of the relevant tasks comply with the prescribed targets
- The learner co-operates successfully as a working team member
- Instructions are executed as prescribed

Outcome 3

- Demonstrate the level of knowledge and understanding required at NQF level 1, of the prescribed work procedures, the safety and health and environmental protection measures in **saw doctoring**, by describing and performing these correctly

Associated assessment criteria

- The description proves that the learner has achieved the level of knowledge and understanding prescribed for NQF Level 1 in **saw doctoring**
- The details given in the description are correct
- The description, verbally or written, is given in a clear and structured manner
- The correct technological terminology is used
- The relevant procedures and measures are performed as prescribed

Outcome 4

- Interpret, explain verbally or in writing, and comply with the prescribed aspects of legislation that impacts on his/her work situation, relating to the Occupational Health and Safety Act, the Labour Relations Act and the Skills Development Act

Associated assessment criteria

- The explanation proves that the learner has the level of knowledge and understanding of the subject matter which ensures correct interpretation and compliance
- The details of the prescribed aspects of the relevant legislation are interpreted and explained correctly
- The explanation of the interpretation is given in a clear and understandable manner
- The correct legal terminology is used in the explanation
- The learner in his/her work situation correctly complies with the prescribed aspects of the relevant legislation

Every one of these exit level outcomes will be developed further in the learning programme for Lumber Milling: **Saw Doctoring**, NQF Level 2 in order to comply with the knowledge and skills levels required at that level.

The successful achievement of all of the above exit level outcomes, is therefore a requirement for those learners who wish to continue their learning in this field at NQF Level 2.

Any learner who does not want to complete this qualification, can exit the learning programme after achieving outcomes 1 and 2, in order to accumulate credits for example for further learning in related learning pathways in lumber milling, or for other fields related to Wood Technology.

INTERNATIONAL COMPARABILITY

Information gained from visits to and from

- The British Columbia Institute for Technology, Vancouver Canada
- The community college at Ashville in North Caroline, U.S.A

- The Forestry Training Centre at Rotorua, New Zealand
 - The Technical and Further Education (TAFE) training institute in Mt Gambier Australia
- influenced the thinking on this and other Wood Technology qualifications.

Qualifications from those institutions and these are not exactly the same but learning programmes and hours of learning are comparable. The inclusion of labour legislation and other non-industry specific subjects make it even more uniquely South African.

The institutions listed above are all internationally recognized as centres of excellence in training and education in the Forestry/Wood Technology field.

INTEGRATED ASSESSMENT

The unit standards on which this qualification is based, describe the competent performance in Saw Doctoring, and lay down the criteria by which competence should be judged, as well as the range of circumstances in which competence should be demonstrated. For each unit standard there are corresponding performance assessment criteria, which describe the evidence an assessor should use to determine a learner's competence.

Integrated assessment methods and tools for this qualification must allow the learner to demonstrate that he/she has acquired the knowledge of and can safely and efficiently apply the required competence in the relevant aspects of activities of Saw Doctoring, as described in paragraph 6 (purpose of this qualification) and paragraph 8 (exit level outcomes). These tools are written or oral test to determine level of knowledge and on-the-job observation to determine applied competence, as summative assessment, for all the exit level outcomes at the completion of the learning programme. The tools that can be used for formative assessment during and at the completion of the learning programme for each of the exit level outcomes, are oral testing, on-the-job observation and role-play situations. The assessor/s can decide which method will be the most appropriate in the particular situation where the assessment is taking place.

A portfolio of evidence of the outcomes of all these assessments for each learner must be built up for record purposes.

This portfolio may also include, inter alia:

- Written statements from e.g. current or previous employer, colleagues, peers, managers, i.e. persons who can supply relevant references.
- Relevant awards or certificates.
- Previous assessment records.
- Journals/logbook, records of work performance.

The currently unemployed who followed a learning programme to achieve this qualification, as well as persons seeking recognition of prior learning, can be assessed in the same way.

RECOGNITION OF PRIOR LEARNING

This qualification may be achieved in part or in whole by recognition of prior learning. The candidate in this case must be evaluated/assessed in the same manner as described in paragraph 10 above.

ARTICULATION POSSIBILITIES

The choice of elective learning components allows the learner to change to another pathway in lumber milling at the same level, or at the next higher level.

The fundamental and non-industry specific core learning components will equip the learner with credits which will be useful in other fields of learning that the learner might wish to change to at any future stage.

MODERATION OPTIONS

All providers offering the learning to achieve this qualification must be registered with the ETQA division of FIETA.

All assessor/s must be registered with the ETQA division of FIETA, and must comply with the requirement for assessors as prescribed by this SETA. In addition, the assessor/s must at least have knowledge and skills levels in this field equivalent to those required by the NQF at level 4, plus two years of practice in this field as a worker or expert consultant or provider. All moderators moderating the assessment of learners for this qualification must be registered with the ETQA Division of FIETA.

NOTES

The Unit Standards for the "Fundamental" and those marked with asterisks in the "Core" component of learning in the qualification matrix will have to be drawn from other organising fields, or will have to be developed.

QUALIFICATION MATRIX FOR: National Certificate In Saw Doctoring NQF Level 1

LEVEL 1	FUNDAMENTAL	CREDIT	CORE	CREDIT	ELECTIVES	CREDIT
	Literacy and Communication Skills	20	Demonstrate understanding of the general basics of lumber milling operation	10	Demonstrate understanding of relevant details of green timber processing	15
	Mathematical literacy	16	Demonstrate understanding of relevant details of saw doctor shop	10	Demonstrate understanding of relevant details of lumber drying	15
			Clean saws and cutters	5	Demonstrate understanding of relevant details of lumber grading	15
			Move/transport saws and cutters	5	Demonstrate understanding of relevant details of dry mill conversion	15
			Perform routine maintenance and lubrication in saw shop	10	Demonstrate understanding of relevant details of finger jointing and laminating	15
			* Demonstrate understanding of relevant aspects of Occupational Safety Health Act	3		
			* Demonstrate understanding of relevant aspects of Labour Relations Act	3		
			* Demonstrate understanding of relevant aspects of the Skills Development Act	3		
			* Demonstrate understanding of relevant aspects of Environmental management	3		
			* Demonstrate understanding of relevant aspects of Quality Assurance	3		
TOTAL		56		55	at least	30
TOTAL	LEVEL 1	141				

SAW DOCTORING NQF LEVEL 1

UNIT STANDARDS TITLES AT NQF LEVEL 1

Industry specific and unit standards available:-

- Title 1. Demonstrate understanding of general basics of lumber milling operation
- Title 2. Demonstrate understanding of all equipment in saw shop of lumber mill and keep these facilities clean.
- Title 3. Clean saws and cutters returned for maintenance in saw shop of lumber mill.
- Title 4. Move/transport saw and cutters between saw shop and processing machines/areas machines in lumber mill.
- Title 5. Perform routine maintenance on saw shop machines and tools in lumber mill.

And two or more of the following:-

- Title 6. Demonstrate understanding of the specific details of the green timber processing area
- Title 7. Demonstrate understanding of the specific details of the lumber grading area
- Title 8. Demonstrate understanding of the specific details of the dry mill conversion area
- Title 9. Demonstrate understanding of the specific details of the lumber drying area
- Title 10. Demonstrate understanding of the specific details of the finger-jointing and laminating area

Unit standards for the following non- industry specific learning components were not available at the time of the development of this qualification and will have to be sourced from the relevant organizing fields/NSB's.

- Title 11. Demonstrate understanding of the general obligations of employers, general duties of employees at work (the OSH Act)
- Title 12. Demonstrate understanding of the general principles, freedom of association, freedom from victimisation, employer and employee organisations (Labour Relations Act)
- Title 13. Demonstrate understanding of the general principles and requirements of learnerships and qualifications (Skills Development Act)
- Title 14. Demonstrate understanding of relevant aspects of Environmental management.
- Title 15. Demonstrate understanding of the relevant aspects of Quality Assurance

UNIT STANDARDS TITLES AND SPECIFIC OUTCOMES AT NQF LEVEL 1

1. Title: Demonstrate understanding of general basics of lumber milling operation

Specific Outcome 1.1: Explain the main purpose of the enterprise's lumber milling operation.

Specific Outcome 1.2: Explain the general layout of the lumber mill.

Specific Outcome 1.3: Explain the sequence of the production phases in the lumber milling process.

Specific Outcome 1.4: Explain the general functions of the major production equipment and stages in the lumber milling operation.

2. Title: Demonstrate understanding of all equipment in saw shop of lumber mill and keep these facilities clean.

Specific Outcome 2.1: Explain the terminology used in the saw doctor shop of the lumber mill.

Specific Outcome 2.2: Explain the saw doctoring terminology used in the lumber mill.

Specific Outcome 2.3: Explain the purpose of all facilities used for saw and cutter maintenance in the lumber mill.

Specific Outcome 2.4: Explain the correct procedures to use to keep the saw doctor shop clean and tidy.

Specific Outcome 2.5: Perform the cleaning process in the saw doctor shop.

3. Title: Clean saws and cutters returned for maintenance in saw shop of lumber mill.

Specific Outcome 3.1: Explain the correct procedures to be followed for cleaning saw blades and cutters in the Saw Doctor Shop.

Specific Outcome 3.2: Explain at what point in the sequence of activities in the saw doctor shop, saw blades and cutters are ready for cleaning.

Specific Outcome 3.3: Explain the prescribed handling procedures regarding cleaning materials and aids used in the Saw Shop (handling = obtaining, using, storing, disposing).

Specific Outcome 3.4: Clean saw blades and cutters as prescribed.

Specific Outcome 3.5: Move saws and cutters to and from cleaning areas in the saw shop.

4. Title: Move/transport saw and cutters between saw shop and processing machines/areas machines in lumber mill.

Specific Outcome 4.1: Explain correct the scheduling of the collection of used and the delivery of serviced saw blades and cutters in the lumber mill.

Specific Outcome 4.2: Explain how to identify used saw blades and cutters/knives at the work/holding areas of the lumber mill.

Specific Outcome 4.3: Explain the correct procedures used for moving saw blades and cutters between the saw mill and the saw shop

Specific Outcome 4.4: Move/transport saw blades and cutters/knives between the saw mill and the saw shop of the lumber mill.

5. Title: Perform routine maintenance on saw shop machines and tools in lumber mill.

Specific Outcome 5.1: Explain the routine maintenance / lubrication programme prescribed for the Saw Doctor shop facilities in the lumber mill.

Specific Outcome 5.2: Describe the tools and materials, and their functions, used for the routine maintenance / lubrication programme of the Saw Doctor shop facilities.

Specific Outcome 5.3: Explain the stores and inventory procedures of maintenance / lubrication items for Saw Doctor shop (items = tools and materials).

Specific Outcome 5.4: Perform the routine maintenance / lubrication programme for the saw doctor shop facilities.

6. Title: Demonstrate understanding of the relevant details of the green timber processing area

Specific Outcome 6.1: Explain the specifics of the purpose and lay out of the relevant workplace.

Specific Outcome 6.2: Explain the general functions of the major production equipment and stages in this workplace.

Specific Outcome 6.3: Explain the sequence of the production phases in this workplace.

Specific Outcome 6.4: Explain the work procedures, safety and health measures and environmental requirements pertaining to NQF Level 1 requirements for this workplace.

7. Title: Demonstrate understanding of the relevant details of the lumber grading area

Specific Outcome 7.1: Explain the specifics of the purpose and lay out of the relevant workplace.

Specific Outcome 7.2: Explain the general functions of the major production equipment and stages in this workplace.

Specific Outcome 7.3: Explain the sequence of the production phases in this workplace.

Specific Outcome 7.4: Explain the work procedures, safety and health measures and environmental requirements pertaining to NQF Level 1 requirements for this workplace.

8. Title: Demonstrate understanding of the relevant details of the dry milling area

Specific Outcome 8.1: Explain the specifics of the purpose and lay out of the relevant workplace.

Specific Outcome 8.2: Explain the general functions of the major production equipment and stages in this workplace.

Specific Outcome 8.3: Explain the sequence of the production phases in this workplace.

Specific Outcome 8.4: Explain the work procedures, safety and health measures and environmental requirements pertaining to NQF Level 1 requirements for this workplace.

9. Title: Demonstrate understanding of the relevant details of the lumber drying area

Specific Outcome 9.1: Explain the specifics of the purpose and lay out of the relevant workplace.

Specific Outcome 9.2: Explain the general functions of the major production equipment and stages in this workplace.

Specific Outcome 9.3: Explain the sequence of the production phases in this workplace.

Specific Outcome 9.4: Explain the work procedures, safety and health measures and environmental requirements pertaining to NQF Level 1 requirements for this workplace.

10. Title: Demonstrate understanding of the relevant details of the finger jointing and laminating area

Specific Outcome 10.1: Explain the specifics of the purpose and lay out of the relevant workplace.

Specific Outcome 10.2: Explain the general functions of the major production equipment and stages in this workplace.

Specific Outcome 10.3: Explain the sequence of the production phases in this workplace.

Specific Outcome 10.4: Explain the work procedures, safety and health measures and environmental requirements pertaining to NQF Level 1 requirements for this workplace.

No. 259

8 March 2002

NATIONAL CERTIFICATE IN SAW DOCTORING NQF LEVEL 2**Field:** Agriculture and Nature Conservation.**Sub-field:** Forestry and Wood Technology.**Level:** 2**Credit:** 125**RATIONALE FOR THE QUALIFICATION**

NOTE: Saw doctoring is the activity concerned with keeping all the cutting tools used in a lumber mill, e.g. saw blades, planer knives etc, in good working order.

- The typical range of learners is the currently employed, unemployed and other persons, who want to enter a learning programme to obtain a National Certificate in Wood Technology: Lumber Milling (Saw Doctoring) at NQF Level 2, to start building a career path in this industry.
- These learners, once qualified, will be able to effectively and efficiently work as assistant operators and team leaders, on tasks they are responsible for at this level in the relevant workplace, in the saw doctoring process..
- South African lumber millers are facing an increasing demand for better quality products at more competitive prices. This is leading to an increased demand for more knowledgeable and better skilled personnel to produce such products. Historically this industry experienced various forms of protection. Lumber mill personnel at the lower levels were only exposed to unplanned, periodic, ad-hoc learning programmes, which did not establish an appropriately trained workforce. All protection has now been removed. This industry is now part of the global market, and it must be competitive in price and quality to survive. It can only achieve this through improved knowledge and skills levels. The new education and training dispensation can deliver this. Therefore a demand, which will increase in the future.
- This qualification equips learners with identified competencies in knowledge and skills at NQF Level 2 and it provides a basis for further learning at NQF Level 3. The exit level outcomes, which embody these competencies in knowledge and skills are listed in paragraph 8 below. The fundamental outcomes as well as the non-industry specific core outcomes required at this level, also provide the learner with building blocks for a learning pathway outside this industry. The choice of electives allows the learner the option of continuing his/her learning in any of four other areas in the lumber milling field.
- The learning programme, which leads to this qualification, produces a person who is knowledgeable about and appropriately skilled in performing the relevant tasks required of a saw doctor in a lumber mill. Persons without any training or with another type of training, or persons who had undergone the ad-hoc type of training which was prevalent under the previous dispensation, will not be of the same quality for this work than a learner with this qualification
- Improved levels of knowledge and skills lead to greater ability to produce at more competitive costs and better quality, increased sales, greater profits, more personal income, which will impact favourably both on the society and the economy of the country.

PURPOSE OF QUALIFICATION

A learner acquiring this qualification will be able to operate as a knowledgeable and appropriately skilled person

in leading a working team in performing the tasks in **saw doctoring** prescribed in the relevant unit standards for NQF Level 2, and

in performing the activity of assistance to the responsible person in **saw doctoring**, as prescribed in the unit standards for this level, in setting up or preparing production equipment, and using or operating such equipment as stand-by for the responsible person.

He/she will be able to perform the relevant tasks in this workplace to the prescribed standards, while correctly following the prescribed work procedures, and the health and safety and environmental protection measures applicable to the **saw doctoring** area.

The learner will be able to interpret and comply with the prescribed aspects of the relevant legislation impacting on his/her work situation.

He/she will be able to explain the aspects of Business Principles, Computer Literacy and Quality Assurance that are prescribed for this level in **saw doctoring**, and use the skills these offer him/her where relevant.

The learner will be able to describe the different parts of a tree and its stem on a cross-section, which will be proof that he/she knows and understands the material that is being processed. The learner will be able to evaluate status of reported problems, report effectively to responsible persons, exhibit leadership in leading a work team in the workplace, assist in carrying out the production programme, collate and analyze data, oversee care of and storage of instruments, tools and equipment and communicate effectively with all persons in the **saw doctoring** area.

This qualification provides the learner with legal proof of having achieved prescribed levels of knowledge and skills competence, where up till the institution of the current dispensation, this only existed for tertiary educated people.

The learning programme that leads to this qualification improves the operating ability and therefore the earning ability of the qualifier, which must contribute to the social and economic development of the country.

This qualification qualifies a person who has successfully demonstrated his/her knowledge levels and competence in the skills prescribed for Wood Technology: Lumber Milling (Saw Doctoring) for NQF Level 2, to enroll for an NQF Level 3 Learnership and Qualification in this domain. It ensures a second step on a structured career path for the learner.

This Qualification forms part of the Learnership in Wood Technology: Lumber Milling (Saw Doctoring) (NQF Level 2), which, together with three other qualifications at this level, constitute the second tier or level of the NQF framework for the Lumber Milling Industry.

It facilitates access to and mobility within learning pathways in Lumber Milling and other Wood Technology learning pathways.

This qualification supports the National Qualifications Framework regarding access, mobility and progression, quality of learning, redress of unfair discrimination and contribution to personal development and social and economic development of the nation.

ACCESS TO QUALIFICATION

There is open access to this qualification. This Qualification is achievable by any person who can demonstrate the knowledge and skills levels, required by the fundamental, core and elective unit standards on which this qualifications is based. Prospective learners do however have to note that certain tasks will be physically demanding.

LEARNING ASSUMED TO BE IN PLACE

It will be assumed that a learner who registers for this qualification, will have successfully mastered the following outcomes:

(Fundamental learning)

Unit standards not available at this time

- Literacy and communication skills equivalent to ABET Level 4 or Grade 9
- Mathematical skills equivalent to ABET Level 4 or Grade 9

(Core learning)

Industry specific and Unit standards available

- Demonstrate understanding of the general basics of the lumber milling operation
- Demonstrate understanding of details of equipment, processes and procedures in the saw doctor area
- Ensure cleanliness in the saw doctor area.
- Perform manual handling in the saw doctor area.

Not industry specific and unit standards not available at this time

- Demonstrate understanding of the general obligations of employers, general duties of employees at work (the OSH Act)
- Demonstrate understanding of the general principles, freedom of association, freedom from victimisation, employer and employee organisations (Labour Relations Act)
- Demonstrate understanding of the general principles and requirements of learnerships and qualifications (Skills Development Act)
- Have an awareness of pollution factors in workplace
- Demonstrate understanding of the basics of quality requirements in processes and products

(Elective Learning)

Industry specific and Unit standards available

Any three of the following:

- Demonstrate understanding of the relevant details of the lumber drying area
- Demonstrate understanding of the relevant details of the green timber processing area
- Demonstrate understanding of the relevant details of the lumber grading area
- Demonstrate understanding of the relevant details of the dry milling area
- Demonstrate understanding of the relevant details of the finger jointing and laminating area

(Cross-field outcomes)

- Demonstrate understanding of instructions, work effectively and efficiently, individually or as a team member, and report effectively and correctly to the relevant person/s on tasks delegated to him/her in his/her work area in the green timber processing facilities.

EXIT LEVEL OUTCOMES

The qualifying learner can:

Outcome 1

- Describe correctly and carry out the tasks prescribed in the unit standards for NQF Level 2 in **saw doctoring**, of leading a work team and lending assistance in setting up or preparing production equipment, and operating such as a stand-by for the responsible person, demonstrating the leadership qualities and communication abilities required by his/her work situation.

Associated assessment criteria

- The learner's description of the procedures involved in his/her prescribed tasks proves that he/she has the level of knowledge and understanding of these as required at NQF Level 2
- The relevant tasks are performed as prescribed
- The learner communicates effectively with the responsible person/s and other workers in his/her work situation and understands and executes instructions regarding the relevant activities correctly
- The learner gives the prescribed quality of leadership to the work team he/she must lead when required
- The learners contribution to the relevant production activity assures that the required delivery/production rate is maintained

- Reported problems in the relevant production activities or workplace are evaluated correctly and the outcomes reported as prescribed to the responsible person.

Outcome 2

- Demonstrate the level of knowledge and understanding required at NQF level 2, of the prescribed work procedures, the safety and health and environmental protection measures in **saw doctoring**, by describing and performing these correctly

Associated assessment criteria

- The learner's description of the procedures involved in carrying out the activities in the workplace and applying the health and safety and environmental protection measures, proves that he/she has achieved the knowledge and understanding of these as required at NQF Level 2 for **saw doctoring**
- The procedures prescribed for the relevant tasks regarding the work activity, safety and health and environmental protection measures, are applied correctly
- The learner's contribution in the performance of these activities ensures the successful execution of the relevant tasks
- The learner co-operates successfully as a working team leader
- Instructions are executed as prescribed

Outcome 3

- Interpret, explain verbally or in writing, and comply with the prescribed aspects of legislation for NQF Level 2, that impacts on his/her work situation, relating to the Occupational Health and Safety Act, the Labour Relations Act, the Skills Development Act, the Employment Equity Act, and the Basic Conditions of Employment Act

Associated assessment criteria

- The learner's explanation of the prescribed aspects of the relevant legislation proves that he/she has the required level of knowledge and understanding of these aspects
- The prescribed aspects of the relevant legislation are interpreted and explained correctly
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct legal terminology is used in the explanation
- The learner in his/her work situation correctly complies where relevant, with the prescribed aspects of the relevant legislation

Outcome 4

- Demonstrate the level of knowledge and understanding required at NQF level 2, by explaining correctly and clearly the relevant aspects of running a business (Business Principles)

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation

Outcome 5

- Demonstrate the level of knowledge and understanding required at this level, of what a computer is, and how to perform basic word processing, by explaining correctly the technology involved and correctly operating a basic word processing programme.

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The basic word processing programme is operated with the prescribed level of skill

Outcome 6

- Demonstrate the level of knowledge and understanding required at this level of quality control and assurance in the **saw doctoring** area, by correctly explaining the procedures and applying these with the prescribed level of skill.

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The procedures for quality control and assurance in **saw doctoring** are performed in a manner which ensures the achievement of the prescribed outcomes.

Outcome 7

- Demonstrate the level of knowledge and understanding required at this level, of the relevant details of the material being processed, by correctly describing the parts of a tree and its stem on a cross-section.

Associated assessment criteria

- The required level of knowledge and understanding of wood as a raw material, is proven by the correct verbal or written explanation
- The correct details regarding the parts of a tree and its stem on a cross-section are described
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct wood technological terminology is used in the explanation

Every one of these exit level outcomes will be developed further in the learning programme for NQF Level 3 Lumber Milling: **Saw Doctoring**, in order to comply with the knowledge and skills levels required at that level.

The successful achievement of all of the above exit level outcomes, is therefore a requirement for those learners who wish to continue their learning in this field at NQF Level 3.

Any learner who does not want to complete this qualification, can exit the learning programme after achieving outcomes 1 and 2, in order to accumulate credits for example for further learning in related learning pathways in lumber milling, or for other fields related to Wood Technology.

INTERNATIONAL COMPARABILITY

Information gained from visits to and from

- The British Columbia Institute for Technology, Vancouver Canada
 - The community college at Ashville in North Carolina, U.S.A
 - The Forestry Training Centre at Rotorua, New Zealand
 - The Technical and Further Education (TAFE) training institute in Mt Gambier Australia
- influenced the thinking on this and other Wood Technology qualifications.

Qualifications from those institutions and these are not exactly the same but learning programmes and hours of learning are comparable. The inclusion of labour legislation and other non-industry specific subjects make it even more uniquely South African.

The institutions listed above are all internationally recognized as centres of excellence in training and education in the Forestry/Wood Technology field.

INTEGRATED ASSESSMENT

The unit standards on which this qualification is based, describe the competent performance in **Saw Doctoring**, and lay down the criteria by which competence should be judged, as well as the range of circumstances in which competence should be demonstrated

For each unit standard there are corresponding performance assessment criteria, which describe the evidence an assessor should use to determine a learner's competence.

Integrated assessment methods and tools for this qualification must allow the learner to demonstrate that he/she has acquired the prescribed knowledge of and can safely and efficiently apply the required competence in the relevant aspects of **Saw Doctoring**, as described in paragraph 6 Purpose of this qualification, and paragraph 8, Exit-level outcomes

These tools are written or oral tests to determine level of knowledge and on-the-job observation to determine applied competence, as summative assessment, for all the exit level outcomes at the completion of the learning programme.

The tools that can be used for formative assessment during and at the completion of the learning programme for each of the exit level outcomes, are oral testing, on the-job-observation, role-play situations and structured classroom discussions. The assessor/s can decide which method will be the most appropriate in the particular situation where the assessment is taking place

A portfolio of evidence of the outcomes of all these assessments for each learner must be built up for record purposes

This portfolio may also include, inter alia

- Written statements from e.g. current or previous employer, colleagues, peers, managers, i.e. persons who can supply relevant references
- Relevant awards or certificates
- Previous assessment records
- Journals/logbook, records of work performance

The currently unemployed who followed a learning programme to achieve this qualification, as well as persons seeking recognition of prior learning, can be assessed in the same way

RECOGNITION OF PRIOR LEARNING

This qualification may be achieved in part or in whole by recognition of prior learning. The candidate in this case must be evaluated/assessed in the same manner as described in paragraph 10 above

ARTICULATION POSSIBILITIES

The choice of elective learning components allows the learner to change to another pathway in lumber milling at the same level, or at the next higher level.

The fundamental and non-industry specific core learning components will equip the learner with credits which will be useful in other fields of learning that the learner might wish to change to at any future stage.

MODERATION OPTIONS

All providers offering the learning to achieve this qualification, must be registered with the ETQA division of FIETA.

All assessor/s must be registered with the ETQA division of FIETA, and must comply with the requirement for assessors as prescribed by this SETA. In addition, the assessor/s must at least have knowledge and skills levels in this field equivalent to those required by the NQF at Level 4, plus two years of practice in this field as a worker or expert consultant or provider. All moderators moderating the assessment of learners for this qualification, must be registered with the ETQA Division of FIETA.

NOTES

The Unit Standards for the "Fundamental" and those marked with asterisks in the "Core" component of learning in the qualification matrix will have to be drawn from other organising fields, or will have to be developed.

QUALIFICATION MATRIX FOR: National Certificate In Saw Doctoring NQF Level 2

LEVEL 2	FUNDAMENTAL	CREDIT	CORE	CREDIT	ELECTIVES	CREDIT
	Literacy and Communication Skills	20	Demonstrate understanding of different parts of a tree	5	Demonstrate understanding of relevant aspects of Lumber Milling maths	16
	Mathematical literacy	16	Demonstrate understanding of basic operation of saw shop	5	Follow procedures to assist in setting up green timber processing facilities	15
			Demonstrate understanding of care of grinding wheels	5	Demonstrate understanding of details of dry milling process	20
			Inspect used saw blades before and after service	2	Follow procedures to assist to set up and operate finger jointing and laminating equipment	20
			Demonstrate understanding of welding and brazing with oxy/acetylene	10	Demonstrate understanding of details of lumber grading	20
			Demonstrate understanding of welding with MIG & TIG	5		
			Manually set and sharpen spring set saw blades	5		
			Swage and sharpen swaged tooth saw blades	10		
			Sharpen knives and profile cutters	4		
			* Demonstrate understanding of relevant aspects of Labour Relations Act	1		
			* Demonstrate understanding of relevant aspects of Employment Equity Act	1		
			* Demonstrate understanding of relevant aspects of Skills Development Act	1		
			* Demonstrate understanding of relevant aspects of Basic Conditions of Employment Act	1		

			* Demonstrate understanding of relevant aspects of computer literacy	1		
			* Demonstrate understanding of relevant aspects of business principles	1		
			* Demonstrate understanding of relevant principles of environmental management	1		
			* Demonstrate understanding of relevant aspects of quality management	1		
TOTAL		36		59	at least	30
TOTAL	LEVEL 2	125				

SAW DOCTORING NQF LEVEL 2**UNIT STANDARDS TITLES AT NQF LEVEL 2**

Industry specific and unit standards available:-

- Title 1. Demonstrate understanding of basic operation of saw shop in lumber mill.
- Title 2. Demonstrate understanding of role of saw doctor in lumber mill.
- Title 3. Demonstrate understanding of care of grinding wheel used in saw blade and cutter maintenance in saw doctor shop of lumber mill.
- Title 4. Inspect used saw blades before and after servicing in saw shop of lumber mill.
- Title 5. Demonstrate understanding of welding and brazing of saw blades using oxygen/acetylene during maintenance in saw shop of lumber mill.
- Title 6. Demonstrate understanding of welding of saw blades using metal inert gas (MIG) and tungsten inert gas (TIG) in saw shop of the lumber mill.
- Title 7. Manually set and sharpen springset saw blades used in lumber mill.
- Title 8. Set and sharpen swaged tooth saw blades used in the lumber mill.
- Title 9. Sharpen and set up knives and profile cutters used in lumber mill.
- Title 10. Demonstrate understanding of different parts of tree and its stem on cross-section.

And two or more of the following:-

- Title 11. Follow procedures to assist to set up green timber processing facilities.
- Title 12. Demonstrate understanding of specific details of lumber grading.
- Title 13. Demonstrate understanding of details of dry milling process.
- Title 14. Follow procedures to assist to set up and operate FJ & Lam equipment.

Unit standards for the following non- industry specific learning components were not available at the time of the development of this qualification and will have to be sourced from the relevant organizing fields/NSB's.

- Title 15. Demonstrate understanding of the aspects of the Occupational Safety Healthy Act regarding listed work, health and safety reps and committees.
- Title 16. Demonstrate understanding of the aspects of the Labour Relations Act regarding general protection and organisational rights, bargaining institutions, resolving disputes, disciplinary and grievance procedures, right to strike and right to lock out.
- Title 17. Demonstrate understanding of the relevant aspects of the Employment Equity Act regarding its interpretation and application and prohibition of unfair discrimination.
- Title 18. Demonstrate understanding of the relevant aspects of the Skills Development Act regarding workplace skills plan, its purpose, compilation and execution.
- Title 19. Demonstrate understanding of the relevant aspects of the Basic Conditions of Employment Act regarding principles of the Act, working time, leave and remuneration.
- Title 20. Demonstrate understanding of the relevant aspects of Business Principles regarding shareholding, profits and losses.
- Title 21. Demonstrate understanding of the relevant aspects of Computer Literacy regarding what is a computer and basic word processing.
- Title 22. Demonstrate understanding of the relevant aspects of Environmental Management regarding operational principles and employees' responsibilities.
- Title 23. Demonstrate understanding of the relevant aspects of Quality Assurance regarding principles of quality sampling procedures and basic principles of material and product specifications.
- Title 24. Demonstrate understanding of relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) (c) regarding concept of volume and area measurement, use of measuring tools and instruments, methods of measuring (mensuration), and concept of shapes.

UNIT STANDARDS TITLES AND SPECIFIC OUTCOMES AT NQF LEVEL 2**1. Title: Demonstrate understanding of basic operation of saw shop in lumber mill.**

Specific Outcome 1.1: Explain the function of all the saw and cutter maintenance machines, tools and gauges in the saw shop of a lumber mill.

Specific Outcome 1.2: Explain which saw and cutter maintenance equipment is used to service the different types of saws, knives and cutters.

Specific Outcome 1.3: Explain the sequence in which different saw and cutter maintenance equipment

(machines, tools and gauges) are used when servicing saws, knives and cutters in the saw shop of a lumber mill.

2. Title: Demonstrate understanding of role of saw doctor in lumber mill.

Specific Outcome 2.1: Explain the role of the Saw Doctor in keeping contact between the saw shop personnel and the other staff in the lumber mill.

Specific Outcome 2.2: Explain the importance of correct saw, knife and cutter maintenance in relation to saw mill productivity in the lumber mill.

Specific Outcome 2.3: Explain the importance of identifying and solving problems relating to saw blades, knives and cutters used in the lumber mill.

Specific Outcome 2.4: Explain the organisation and planning required to ensure that the saw doctor shop achieves its work target and schedules.

Specific Outcome 2.5: Explain how training and career planning ensures competence in the field of saw doctoring.

Specific Outcome 2.6: Explain the management functions required to ensure Saw Doctor Shop efficiency.

3. Title: Demonstrate understanding of care of grinding wheel used in saw blade and cutter maintenance in saw doctor shop of lumber mill.

Specific Outcome 3.1: Explain the different types and purposes of grinding wheels used for sharpening saw blades, knives and cutters in the saw doctor shop.

Specific Outcome 3.2: Explain the correct procedures for maintaining grinding wheels and stones used in the saw shop of the lumber mill.

Specific Outcome 3.3: Demonstrate the correct set up a grinding wheel on a grinding machine.

Specific Outcome 3.4: Use a grinding machine to sharpen saw blades, knives and cutters.

4. Title: Inspect used saw blades before and after servicing in saw shop of lumber mill.

Specific Outcome 4.1: Explain how to identify damage and faults to used saw blades before and after cleaning in the saw shop of the lumber mill.

Specific Outcome 4.2: Explain the markings used to highlight damage and faults found on the saw blades before and after cleaning.

Specific Outcome 4.3: Report damage and faults found on used saw blades to the correct responsible person in the saw shop of the lumber mill.

5. Title: Demonstrate understanding of welding and brazing of saw blades using oxygen/acetylene during maintenance in saw shop of lumber mill.

Specific Outcome 5.1: Explain the materials and equipment used with oxygen/acetylene to weld and braze saw blades.

Specific Outcome 5.2: Explain the procedures to be followed when welding and brazing using oxygen/acetylene in the saw shop.

Specific Outcome 5.3: Weld and braze saw blades using oxygen/acetylene in the saw shop.

Specific Outcome 5.4: Clean the faces and edges welds after welding saw blades using oxygen/acetylene.

6. Title: Demonstrate understanding of welding of saw blades using metal inert gas (MIG) and tungsten inert gas (TIG) in saw shop of the lumber mill.

Specific Outcome 6.1: Set up an MIG arc welder for welding saw blades in the saw shop of a Lumber mill.

Specific Outcome 6.2: Set up a TIG arc welder for welding saw blades in the saw shop.

Specific Outcome 6.3: Weld saw blades using a MIG arc welder.

Specific Outcome 6.4: Weld saw blades using a TIG arc welder.

Specific Outcome 6.5: Clean the faces and edges of welds after using a MIG/TIG arc welder in the saw shop.

7. Title: Manually set and sharpen springset saw blades used in lumber mill.

Specific Outcome 7.1: Explain the differences between spring set and swage set saw blade teeth shapes used on saw blades in the Lumber mill.

Specific Outcome 7.2: Explain the procedures used to manually set and sharpen spring set saw blades.

Specific Outcome 7.3: Explain the prescribed maintenance and adjustment of tools and equipment used to manually set and sharpen spring set saw blades.

Specific Outcome 7.4: Set and sharpen manually spring set saw blades.

8. Title: Set and sharpen swaged tooth saw blades used in the lumber mill.

Specific Outcome 8.1: Explain the procedures used to set and sharpen swaged tooth saw blades used in the Lumber Mill.

Specific Outcome 8.2: Explain set up and adjustment of tools and equipment used to set and sharpen swaged tooth saw blades used in the Lumber Mill.

Specific Outcome 8.3: Set and sharpen swaged tooth saw blades using manually operated and automated machines and tools in the saw shop of the Lumber Mill.

Specific Outcome 8.4: Explain the prescribed maintenance and adjustment of tools and equipment used to set and sharpen swaged tooth set saw blades.

9. Title: Sharpen and set up knives and profile cutters used in lumber mill.

Specific Outcome 9.1: Explain the inspections carried out on used/blunt knives and profile cutters used in the lumber mill.

Specific Outcome 9.2: Set up the knife and profile cutter grinding machines in the saw shop.

Specific Outcome 9.3: Sharpen knives and profile cutters using the appropriate grinding machines in the saw shop.

Specific Outcome 9.4: Knives and cutters in cutter blocks for planning.

Specific Outcome 9.5: Carry out the routine maintenance of the knife and profile cutter grinding machines used in the saw shop.

10. Title: Demonstrate understanding of different parts of tree and its stem on cross-section.

Specific Outcome 10.1: Identify the main parts of a tree

Specific Outcome 10.2: Identify those main features of wood visible to the naked eye on the cross section of a tree stem

Specific Outcome 10.3: Identify the special growth features of wood that usually affect dried quality of wood

Specific Outcome 10.4: Explain the basic differences between hardwoods and softwoods

11. Title: Follow procedures to assist to set up green timber processing facilities.

Specific Outcome 11.1: Follow procedures to assist in maintaining a regular / constant flow of materials through all the processing phases in the wet mill.

Specific Outcome 11.2: Follow procedures to assist in setting up green timber processing equipment for production runs in the wet mill.

Specific Outcome 11.3: Follow procedures to assist in operating green timber processing machines/equipment and materials handling equipment in the wet mill.

Specific Outcome 11.4: Follow procedures to assist in the removal and disposal of wood waste in the prescribed manner, place and time in the wet mill.

12. Title: Demonstrate understanding of specific details of lumber grading.

Specific Outcome 12.1: Explain the relevant visual grading rules and specifications for the appearance grade products that the relevant enterprise produces.

Specific Outcome 12.2: Explain the relevant visual grading rules, and specifications for stress (strength) graded product that this enterprise produces.

Specific Outcome 12.3: Explain the relevant mechanical grading rules and specifications for the various stress (strength) grade products that this enterprise produces.

Specific Outcome 12.4: Explain the relevant grading marks for the various grades of products that are produced, and their respective placements on these products.

13. Title: Demonstrate understanding of details of dry milling process.

Specific Outcome 13.1: Explain the purpose and process of rip-sawing to recover narrower and/or thinner products from dried lumber.

Specific Outcome 13.2: Explain the purpose and process of cross-cutting to recover shorter products from dried lumber.

Specific Outcome 13.3: Explain the purpose and process of planning lumber.

Specific Outcome 13.4: Explain the purpose and process of moulding lumber.

Specific Outcome 13.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area.

14. Title: Follow procedures to assist to set up and operate FJ & Lam equipment.

Specific Outcome 14.1: Explain the purpose and process of feeding finger-joint cutter machine.

Specific Outcome 14.2: Explain the purpose and process of applying glue to finger profiles for necessary coverage to the whole of each intermeshing surface of each finger manually and / or mechanically and what is meant by correct axial alignment.

Specific Outcome 14.3: Explain the purpose and process of feeding out jointed pieces supported from the press at the correct time and crosscut.

Specific Outcome 14.4: Explain the purpose and process of stacking finger-jointed material for curing

Specific Outcome 14.5: Explain the purpose and process of feeding laminates through glue applicator equipment.

Specific Outcome 14.6: Explain the purpose and process laying up glued laminates in relevant jig for pressing.

Specific Outcome 14.7: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area.

NATIONAL CERTIFICATE IN SAW DOCTORING NQF LEVEL 3

Field: Agriculture and Nature Conservation.

Sub-field: Forestry and Wood Technology.

Level: 3

Credit: 136 for band saw option
or
133 for frame saw option

RATIONALE FOR THE QUALIFICATION

NOTE: Saw doctoring is the activity concerned with keeping all the cutting tools used in a lumber mill, e.g. saw blades, planer knives etc, in good working order. There are currently two basic types of sawing machines which typify individual South African lumber mills, which require different types of saw doctoring, i.e. Band-saws and Frame-saws. There are therefore the two options at NQF Level 3 for the learner in this regard.

- The typical range of learners is the currently employed, unemployed and other persons, who want to enter a learning programme to obtain a National Certificate in Wood Technology: Lumber Milling (Saw Doctoring) at NQF Level 3, to start building a career path in this industry.
- These learners, once qualified, will be able to effectively and efficiently work as operators and leaders of work teams, on tasks they are responsible for at this level in the relevant workplace in the saw doctoring process.
- South African lumber millers are facing an increasing demand for better quality products at more competitive prices. This is leading to an increased demand for more knowledgeable and better skilled personnel to produce such products. Historically this industry experienced various forms of protection. Lumber mill personnel at the lower levels were only exposed to unplanned, periodic, ad-hoc learning programmes, which did not establish an appropriately trained workforce. All protection has now been removed. This industry is now part of the global market, and it must be competitive in price and quality to survive. It can only achieve this through improved knowledge and skills levels. The new education and training dispensation can deliver this. Therefore a demand, which will increase in the future.
- This qualification equips learners with identified competencies in knowledge and skills at NQF Level 3 and it provides a basis for further learning at NQF level 4. The exit level outcomes, which embody these competencies in knowledge and skills are listed in paragraph 8 below. The fundamental outcomes as well as the non-industry specific core outcomes required at this level, also provide the learner with building blocks for a learning pathway outside this industry. The choice of electives allows the learner the option of continuing his/her learning in any of four other areas in the lumber milling field.
- This qualification equips learners with identified competencies in knowledge and skills at NQF Level 3 and it provides a basis for further learning at NQF level 4. The exit level outcomes, which embody these competencies in knowledge and skills are listed in paragraph 8 below. The fundamental outcomes as well as the non-industry specific core outcomes required at this level, also provide the learner with building blocks for a learning pathway outside this industry. The choice of electives allows the learner the option of continuing his/her learning in any of four other areas in the lumber milling field.
- The learning programme, which leads to this qualification, produces a person who is knowledgeable about and appropriately skilled in performing the relevant tasks required of a saw doctor at this level. Persons without any training or with another type of training, or persons who had undergone the ad-hoc

type of training which was prevalent under the previous dispensation, will not be of the same quality for this work than a learner with this qualification

- Improved levels of knowledge and skills lead to greater ability to produce at more competitive costs and better quality, increased sales, greater profits, more personal income, which will impact favourably both on the society and the economy of the country.

PURPOSE OF QUALIFICATION

A learner acquiring this qualification will be able to perform the functions/duties/responsibilities of the person responsible for the production tasks in saw doctoring, demonstrating the knowledge and skills competencies levels prescribed in the unit standards for NQF Level 3 in this field.

He/she will be able to perform the relevant tasks in this workplace to the prescribed standards, while correctly following the prescribed work procedures, and the health and safety and environmental protection measures applicable to the saw doctoring area.

The learner will be able to interpret and comply with the prescribed aspects of the relevant legislation impacting on his/her work situation.

He/she will be able to explain the aspects of Business Principles, Computer Literacy and Quality Assurance that are prescribed for this level in saw doctoring, and use the skills these offer him/her where relevant.

This learner will be able to describe the structure of wood and how this relates to its appearance, strength and water holding properties.

This qualification provides the qualifying learner with legal proof of having achieved the prescribed levels of knowledge and practical competence, where up till the present time, this only existed for tertiary educated persons.

The learning programme that leads to this qualification improves the operating ability and therefore the earning ability of the qualifier, which must contribute to the social and economic development of the country.

This qualification qualifies a person who has successfully demonstrated his/her knowledge levels and competence in the skills prescribed for Wood Technology: Lumber Milling (Saw Doctoring) for NQF Level 3, to enroll for an NQF Level 4 Learnership and Qualification in this domain. It ensures another step on a structured career path for the learner. This Qualification forms part of the Learnership in Wood Technology: Lumber Milling (Saw Doctoring) (NQF Level 3), which, together with three other qualifications at this level, constitute the third tier or level of the NQF framework for the Lumber Milling Industry.

It facilitates access to and mobility within learning pathways in Lumber Milling and other Wood Technology learning pathways. This qualification supports the National Qualifications Framework regarding access, mobility and progression, quality of learning, redress of unfair discrimination and contribution to personal development and social and economic development of the nation

ACCESS TO QUALIFICATION

There is open access to this qualification. This Qualification is achievable by any person who can demonstrate the knowledge and skills levels, required by the fundamental, core and elective unit standards on which this qualifications is based. Prospective learners do however have to note that certain tasks will be physically demanding.

LEARNING ASSUMED TO BE IN PLACE

It will be assumed that a learner who registers for this qualification, will have successfully mastered the following outcomes:

(Fundamental learning)

- Communicate orally and in writing to standards equivalent to NQF Level 2 requirements
- Exhibit mathematical skills equivalent to NQF Level 2 requirements

(Core learning)

- Demonstrate understanding of the different parts of a tree and its stem on cross-section.
- Demonstrate understanding basic operation of saw shop in lumber mill
- Demonstrate understanding role of saw doctor in lumber mill
- Demonstrate understanding of grinding wheels used in saw blade and cutter maintenance in saw shop in lumber mill
- Inspect used saw blades before and after servicing in saw shop in lumber mill
- Demonstrate understanding welding and brazing of saw blades using oxy/acetylene during maintenance in lumber mill
- Demonstrate understanding welding of saw blades using metal inert gas (MIG) and tungsten inert gas (TIG) in saw shop in lumber mill
- Manually set and sharpen springset saw blades used in lumber mill
- Set and sharpen swaged tooth saw blades used in lumber mill
- Sharpen knives and profile cutters used in lumber mill
- perform these tasks according to the work procedures of the enterprise, and subject to the relevant safety and health prescriptions and the applicable environmental management principles,
- Demonstrate understanding the aspects of the Occupational Health and Safety Act regarding listed work, health and safety reps and committees
- Demonstrate understanding the aspects of the Labour Relations Act regarding general protection and organisational rights, bargaining institutions, resolving disputes, disciplinary and grievance procedures, right to strike and right to lock out
- Demonstrate understanding the relevant aspects of the Employment Equity Act regarding its interpretation and application and prohibition of unfair discrimination
- Demonstrate understanding the relevant aspects of the Skills Development Act regarding workplace skills plan, its purpose, compilation and execution.
- Demonstrate understanding the relevant aspects of the Basic Conditions of Employment Act regarding principles of the Act, working time, leave and remuneration.
- Demonstrate understanding the relevant aspects of Business Principles regarding shareholding, profits and losses
- Demonstrate understanding the relevant aspects of Computer Literacy regarding what is a computer and basic word processing.
- Demonstrate understanding the relevant aspects of Environmental Management regarding operational principles and employees' responsibilities
- Demonstrate understanding the relevant aspects of Quality Assurance regarding principles of quality sampling procedures and basic principles of material and product specifications

(Elective Learning)

- Demonstrate understanding the relevant details of green timber conversion or lumber drying or lumber grading, or dry mill conversion, or finger jointing and laminating
- Demonstrate understanding relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) (c) regarding concept of volume and area measurement, use of measuring tools and instruments, methods of measuring (mensuration), and concept of shapes

(Cross-field Outcomes)

- Evaluate status of reported problems, report orally or in writing to relevant person/s, lead work team in workplace, assist to carry out production programme, collating and analysing data, communicate effectively with all relevant persons and oversee the care and storage of tools and instruments used in the workplace.

EXIT LEVEL OUTCOMES

The qualifying learner can:

Outcome 1

- Describe and perform the functions/duties/responsibilities required of the person responsible for the production tasks in **saw doctoring**, demonstrating the knowledge and skills competencies levels prescribed in the unit standards for NQF Level 3 in this field.

Associated assessment criteria

- The learner's description demonstrates a knowledge and understanding of the functions/duties/responsibilities required of the person responsible for the production tasks in **saw doctoring**, which complies with the requirements prescribed for NQF Level 3
- The relevant tasks are performed as prescribed
- The learner communicates effectively with the responsible person/s and other workers in his/her work situation and gives the necessary guidance required of his position in the prescribed manner
- The learner gives the prescribed quality of leadership to the work team he/she must lead in his/her work situation
- This learner's contribution to the relevant production activity assures that the required delivery/production rate is maintained
- Reported problems in the relevant production activities or workplace are solved and the necessary decisions made in the prescribed manner
- Workers in the learner's area of authority in the **saw doctoring area** are motivated, guided and trained in the relevant production activities in the prescribed manner

Outcome 2

- Demonstrate the level of knowledge and understanding required at NQF level 3, of the prescribed work procedures, the safety and health and environmental protection measures in **saw doctoring**, by describing and performing these correctly

Associated assessment criteria

- The learner's description demonstrates a knowledge and understanding of the work procedures, safety and health, and environmental protection measures, which complies with the prescriptions for the NQF Level 3 in **saw doctoring**
- The procedures prescribed for the relevant tasks regarding the work activity, safety and health and environmental protection measures, are applied correctly
- The learner's correct guidance and motivation of the workers in the performance of these activities ensures the execution of the relevant tasks as prescribed
- The learner achieves the required co-operation successfully as a leader in his/her area of authority in the **saw doctoring area**
- His/her instructions are understood and executed as prescribed

Outcome 3

- Interpret, explain verbally or in writing, and comply with the prescribed aspects of legislation for NQF Level 3, that impacts on his/her work situation, relating to the OSH Act, the Labour Relations Act, the Skills Development Act, the Employment Equity Act, and the Basic Conditions of Employment Act

Associated assessment criteria

- The learner's explanation of the prescribed aspects of the relevant legislation proves that he/she has the level of knowledge and understanding of these aspects as required at NQF Level 3 for **saw doctoring**
- The prescribed aspects of the relevant legislation are interpreted and explained correctly
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct legal terminology is used in the explanation
- The learner in his/her work situation correctly complies where relevant, with the prescribed aspects of the relevant legislation

Outcome 4

- Demonstrate the level of knowledge and understanding required at NQF level 3, by explaining correctly and clearly the relevant aspects of running a business (Business Principles)

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation

Outcome 5

- Demonstrate the level of knowledge and understanding required at this level, regarding computer software packages relevant to lumber milling and their use, by explaining correctly the technology involved and correctly applying these programmes

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The relevant software programmes are operated with the prescribed level of skill

Outcome 6

- Demonstrate the level of knowledge and understanding required at NQF level 3, of quality control and assurance in the **saw doctoring** area, by correctly explaining the procedures and applying these with the prescribed level of skill.

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The procedures for quality control and assurance in **saw doctoring** are performed in a manner which ensures the achievement of the prescribed outcomes

Outcome 7

- Demonstrate the knowledge and understanding required at NQF level 3, of the relevant details of the material being processed, by correctly describing the structure of wood and how this relates to its appearance, strength and water holding properties.

Associated assessment criteria

- The required level of knowledge and understanding of wood as a raw material, is proven by the correct verbal or written explanation of its structure and how this relates to its appearance, strength and water holding properties
- The details regarding the structure of wood and how this relates to the relevant properties, are described correctly
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct wood technological terminology is used in the explanation

Every one of these exit level outcomes, except outcome 4 which relates to Business Principles, will be developed further in the learning programme for NQF Level 4 Lumber Milling: **Saw Doctoring**, in order to comply with the knowledge and skills levels required at that level.

The successful achievement of all of the above exit level outcomes, is therefore a requirement for those learners who wish to continue their learning in this field at NQF Level 4.

Any learner who does not want to complete this qualification, can exit the learning programme after achieving outcomes 1 and 2, in order to accumulate credits for example for further learning in related learning pathways in lumber milling, or for other fields related to Wood Technology.

INTERNATIONAL COMPARABILITY

Information gained from visits to and from

- The British Columbia Institute for Technology, Vancouver Canada
 - The community college at Ashville in North Caroline, U.S.A
 - The Forestry Training Centre at Rotorua, New Zealand
 - The Technical and Further Education (TAFE) training institute in Mt Gambier Australia
- influenced the thinking on this and other Wood Technology qualifications.

Qualifications from those institutions and these are not exactly the same but learning programmes and hours of learning are comparable. The inclusion of labour legislation and other non-industry specific subjects make it even more uniquely South African.

The institutions listed above are all internationally recognized as centres of excellence in training and education in the Forestry/Wood Technology field.

INTEGRATED ASSESSMENT

The unit standards on which this qualification is based, describe the competent performance in **Saw Doctoring**, and lay down the criteria by which competence should be judged, as well as the range of circumstances in which competence should be demonstrated

For each unit standard there are corresponding performance assessment criteria, which describe the evidence an assessor should use to determine a learner's competence.

Integrated assessment methods and tools for this qualification must allow the learner to demonstrate that he/she has acquired the prescribed knowledge of and can safely and efficiently apply the required competence in the relevant aspects of **Saw Doctoring**, as described in paragraph 6 (Purpose of this qualification) and paragraph 8 (Exit-level outcomes).

These tools are written or oral tests to determine level of knowledge and on-the-job observation, to determine applied competence, as summative assessment, for all the exit level outcomes at the completion of the learning programme.

The tools that can be used for formative assessment during and at the completion of the learning programme for each of the exit level outcomes, are oral testing, on the-job-observation, role-play situations and structured classroom discussions. The assessor/s can decide which method will be the most appropriate in the particular situation where the assessment is taking place.

A portfolio of evidence of the outcomes of all these assessments for each learner must be built up for record purposes.

This portfolio may also include, inter alia

- Written statements from e.g. current or previous employer, colleagues, peers, managers, i.e. persons who can supply relevant references
- Relevant awards or certificates
- Previous assessment records
- Journals/logbook, records of work performance

The currently unemployed who followed a learning programme to achieve this qualification, as well as persons seeking recognition of prior learning, can be assessed in the same way.

RECOGNITION OF PRIOR LEARNING

This qualification may be achieved in part or in whole by recognition of prior learning. The candidate in this case must be evaluated/assessed in the same manner as described in paragraph 10 above.

ARTICULATION POSSIBILITIES

The choice of elective learning components allows the learner to change to another pathway in lumber milling at the same level, or at the next higher level.

The fundamental and non-industry specific core learning components will equip the learner with credits which will be useful in other fields of learning that the learner might wish to change to at any future stage.

MODERATION OPTIONS

All providers offering the learning to achieve this qualification, must be registered with the ETQA division of FIETA.

All assessor/s must be registered with the ETQA division of FIETA, and must comply with the requirement for assessors as prescribed by this SETA. In addition the assessor/s must at least have the knowledge and skills levels in this field equivalent to those required by the NQF at Level 4, plus two years of practice in this field as a worker or expert consultant or provider. All moderators moderating the assessment of learners for this qualification, must be registered with the ETQA Division of FIETA.

NOTES

The Unit Standards for the "Fundamental" and those marked with asterisks in the "Core" component of learning in the qualification matrix will have to be drawn from other organising fields, or will have to be developed.

QUALIFICATION MATRIX FOR: National Certificate In Saw Doctoring NQF Level 3

LEVEL 3	FUNDAMENTAL	CREDIT	CORE	CREDIT	ELECTIVES	CREDIT
	Literacy and Communication Skills	20	Demonstrate understanding of structure of wood and how it relates to its strength, appearance and water holding	15	Demonstrate understanding of relevant aspects of Lumber Milling maths	15
	Mathematical literacy	16	Demonstrate understanding of technology applicable to use of grinding wheels made from specialised materials	4	Control lumber grading	20
			Level and tension circular saw blades	15	Set up and operate primary breakdown in green timber processing	10
			Set up circular saw blades in sawing machine	2	Set up and operate secondary breakdown in green timber processing	10
			Operate automatic stellite tipping and profile grinding machine	15	Set up and operate dry mill conversion equipment	20
			Design and make tooth profile templates for saws and cutters	5	Produce FJ & Laminated lumber	20
			Maintain and set up cutter blocks	3		
			Maintain and set up chipper knives and anvils in chippers	5		
			And one or more of the following	64		
			PLUS			
			BAND-SAW OPTION			
			Level and tension wide band saw blades	10		
			Set up wide blade band-saw machine and log carriage	4		
			Maintain wide band-saw wheel faces	2		
			Maintain and set up narrow band-saw blades	2		
				18		
			OR			
			FRAME-SAW OPTION			
			Level and tension frame-saw blades	10		
			Hang frame-saw blades and set up frame saw in machine	5		
				15		
			* Demonstrate understanding of relevant aspects of Labour Relation Act	1		

			* Demonstrate understanding of relevant aspects of Employment Equity Act	1		
			* Demonstrate understanding of relevant aspects of Skills Development Act	1		
			* Demonstrate understanding of relevant aspects of Basic Conditions of Employment Act	1		
			* Demonstrate understanding of relevant aspects of computer literacy	1		
			* Demonstrate understanding of relevant aspects of business principles	1		
			* Demonstrate understanding of relevant principles of environmental management	1		
			* Demonstrate understanding of relevant aspects of quality management	1		
TOTAL		36	Band saw option or Frame saw option	90 87	at least	10
TOTAL	Level 3 – Band saw option or Frame saw option	136 133				

SAW DOCTORING NQF LEVEL 3**UNIT STANDARDS TITLES AT NQF LEVEL 3**

Industry specific and unit standards available:-

- Title 1. Demonstrate understanding of technology applicable to use of grinding wheels made from advanced/specialised material, in saw and cutter maintenance in lumber mill.
- Title 2. Level and tension circular saw blades used in lumber mill.
- Title 3. Set up circular saw blade(s) in machine used for processing timber in lumber mill.
- Title 4. Operate automatic sellite tipping and profile grinding machines in saw shop of lumber mill.
- Title 5. Design and make tooth profile templates for saws and cutters used in machines in lumber mill.
- Title 6. Maintain and set up cutter blocks with profiled and disposable cutters for machines use in lumber mill.
- Title 7. Maintain and set up chipper knives and anvils in chipper machine in lumber mill.
- Title 8. Demonstrate understanding of structure of wood and how it relates to its appearance, strength and how it holds water.

Select one of the following options:-**Title 9. Band Saw Option**

- a. Level and tension wide bandsaw blades in the saw shop of lumber mill.
- b. Set up wide blade bandsaw machine and its log carriage used in lumber mill.
- c. Maintain wide blade bandsaw wheel faces on bandsaws used in lumber mill.
- d. Maintain and set up narrow band saw blade(s) used on bandsaws in lumber mill.

Title 10. Frame Saw Option

- a. Level and tension frame saw blades used in lumber mill.
- b. Hang frame saw blades and set up frame saw machine used in lumber mill.

And one or more of the following:-

- Title 11. Set up and operate primary log breakdown facilities in green timber processing area of lumber mill
- Title 12. Set up and operate secondary log breakdown facilities in green timber processing area of lumber mill
- Title 13. Control lumber grading
- Title 14. Set up and operate conversion equipment in dry mill
- Title 15. Produce Finger jointing lumber in the lumber mill
- Title 16. Produce laminated lumber in the lumber mill

Unit standards for the following non industry specific learning components were not available at the time of the development of this qualification and will have to be sourced from the relevant organizing fields/ NSB's.

- Title 17. Demonstrate understanding of the relevant aspects of the Occupational Safety Healthy Act, the ISO 14 000 principles
- Title 18. Demonstrate understanding of the relevant aspects of the Labour Relations Act regarding Committee for Conciliation and Mediation procedures, unfair dismissal and unfair labour practice
- Title 19. Demonstrate understanding of the relevant aspects of the Employment Equity Act regarding affirmative action procedures, monitoring, enforcement and legal procedure
- Title 20. Demonstrate understanding of the relevant aspects of the Skills Development Act regarding learnerships, learner rights, employer rights, provider rights, contracts
- Title 21. Demonstrate understanding of the relevant aspects of the Basic Conditions of Employment Act regarding employment contract, employment criteria, termination of employment
- Title 22. Demonstrate understanding of the relevant aspects of Business Principles regarding financial management basics, budgeting principles
- Title 23. Demonstrate understanding of the relevant aspects of Computer Literacy regarding software packages and their use
- Title 24. Demonstrate understanding of the relevant aspects of Environmental Management principles
- Title 25. Demonstrate understanding of the relevant aspects of Quality Assurance regarding quality systems, SABS specifications, ISO 9000 principles

Title 26. Demonstrate understanding of relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) (c) regarding calculations of speed/time, weight/density, fractions and percentages, linear graphs and moving averages

UNIT STANDARDS TITLES AND SPECIFIC OUTCOMES AT NQF LEVEL 3

1. Title: Demonstrate understanding of technology applicable to use of grinding wheels made from advanced/specialised material, in saw and cutter maintenance in lumber mill.

Specific Outcome 1.1: Explain the construction and maintenance of grinding wheels made from specialised materials, used for saw and cutter maintenance in the Saw Shop of the Lumber Mill.

Specific Outcome 1.2: Classify grinding wheels made from advanced / specialised materials, for use in saw and cutter maintenance.

Specific Outcome 1.3: Set up an advanced / specialised material grinding wheel on a grinding machine in the saw shop.

Specific Outcome 1.4: Sharpen cutting tools using grinding wheels of advanced / specialised materials, in the saw shop of the lumber mill.

2. Title: Level and tension circular saw blades used in lumber mill.

Specific Outcome 2.1: Describe the tools, gauges, and equipment used to level and tension circular saw blades in the saw shop of the lumber mill.

Specific Outcome 2.2: Explain the levelling and tensioning of circular saw blades in the saw shop of a lumber mill.

Specific Outcome 2.3: Level circular saw blades used in the lumber mill.

Specific Outcome 2.4: Tension saw blades used in the lumber mill.

3. Title: Set up circular saw blade(s) in machine used for processing timber in lumber mill.

Specific Outcome 3.1: Check the mechanical components and the adjustment that affects the correct performance of the saw blade in the saw bench.

Specific Outcome 3.2: Mount / fit circular saw blade(s) in a saw bench.

Specific Outcome 3.3: Monitor the performance of the serviced saw blade in production in the lumber mill.

4. Title: Operate automatic sellite tipping and profile grinding machines in saw shop of lumber mill.

Specific Outcome 4.1: Set up an automatic sellite tipping machine in the saw shop of the lumber mill.

Specific Outcome 4.2: Prepare a saw blade for automatic sellite tipping.

Specific Outcome 4.3: Sellite tip and anneal a saw blade using an automatic sellite tipping machine.

Specific Outcome 4.4: Set up an automatic profile grinding machine.

Specific Outcome 4.5: Side grind a sellite tipped saw blade, using an automatic profile grinding machine.

5. Title: Design and make tooth profile templates for saws and cutters used in machines in lumber mill.

Specific Outcome 5.1: Explain the reasons for designing and making tooth profile templates for saws and cutters used in machines in the lumber mill.

Specific Outcome 5.2: Design saw and cutter tooth profile templates for saws and cutters used in the lumber mill.

Specific Outcome 5.3: Make saw and cutter tooth profile templates.

6. Title: Maintain and set up cutter blocks with profiled and disposable cutters for machines use in lumber mill.

Specific Outcome 6.1: Maintain cutter blocks with profiled and disposable cutters for machines used in the lumber mill.

Specific Outcome 6.2: Set up a cutter block with profiled cutters.

Specific Outcome 6.3: Set up a cutter block with disposable cutters.

7. Title: Maintain and set up chipper knives and anvils in chipper machine in lumber mill.

Specific Outcome 7.1: Service a set of used/blunt chipper knives from a chipper used in the lumber mill.

Specific Outcome 7.2: Service a worn anvil from a chipper used in a lumber mill.

Specific Outcome 7.3: Install a serviced set of knives and anvil in a chipper.

Specific Outcome 7.4: Check wood chip quality of a serviced chipper.

8. Title: Demonstrate understanding of structure of wood and how it relates to its appearance, strength and how it holds water.

Specific Outcome 8.1: Describe the fine (microscopic) structure of wood, i.e. the "units".

Specific Outcome 8.2: Describe how this relates to the weight (density) and strength of wood.

Specific Outcome 8.3: Explain the influence these units have on the appearance of wood.

Specific Outcome 8.4: Explain how wood holds water.

Specific Outcome 8.5: Explain why and how wood shrinks and swells ("moves").

9. Title: Level and tension wide bandsaw blades in the saw shop of lumber mill.

Specific Outcome 9.1: Describe the tools; gauges and equipment used to level and tension wide bandsaw blades in the saw shop of the lumber mill.

Specific Outcome 9.2: Level wide bandsaw blades used in the lumber mill.

Specific Outcome 9.3: Tension wide bandsaw blades used in the lumber mill.

Specific Outcome 9.4: Service the back of a wide bandsaw blade used in the lumber mill.

10. Title: Set up wide blade bandsaw machine and its log carriage used in lumber mill.

Specific Outcome 10.1: Check all band saw machine factors, which affect the correct performance of wide band saw blade.

Specific Outcome 10.2: Set up a wide band saw blade(s) on a band saw machine use in the lumber mill.

Specific Outcome 10.3: Set up the log carriage traverse components of a wide blade band saw machine.

Specific Outcome 10.4: Set up the log mounting components of a wide blade band saw machine.

Specific Outcome 10.5: Set up the sawn dimension set works of a wide blade band saw machine.

Specific Outcome 10.6: Monitor the performance of serviced saw wide band blades in production in the lumber mill.

11. Title: Maintain wide blade bandsaw wheel faces on bandsaws used in lumber mill.

Specific Outcome 11.1: Prepare a wide blade band saw headrig for wheel face maintenance in the lumber mill.

Specific Outcome 11.2: Explain the use of a Barnhardt wheel face grinder used on a wide blade band saw machine used in the Lumber Mill.

Specific Outcome 11.3: Grind the wheel faces of a wide blade band saw machine used in the lumber mill.

12. Title: Maintain and set up narrow band saw blade(s) used on bandsaws in lumber mill.

Specific Outcome 12.1: Inspect a narrow band saw blade after use in the lumber mill.

Specific Outcome 12.2: Spring set the teeth on a narrow band saw blade.

Specific Outcome 12.3: Sharpen a narrow band saw blade after setting the teeth.

Specific Outcome 12.4: Check the band saw machine components, which affect the performance of the narrow band saw blade during production.

Specific Outcome 12.5: Set up a narrow band saw blade on a band saw machine used in the lumber mill.

Specific Outcome 12.6: Monitor the performance of a serviced narrow band saw blade during production in the Lumber Mill.

13. Title: Level and tension frame saw blades used in lumber mill.

Specific Outcome 13.1: Describe the tools, gauges and equipment used to level and tension frame saw blades in the saw shop of the lumber mill.

Specific Outcome 13.2: Level frame saw blades.

Specific Outcome 13.3: Tension frame saw blades.

Specific Outcome 13.4: Service the back of a frame saw blade.

Specific Outcome 13.5: Service both extremities of the frame saw blade tooth line.

14. Title: Hang frame saw blades and set up frame saw machine used in lumber mill.

Specific Outcome 14.1: Describe the tools, gauges and equipment used to set up/hang a set of frame saw blades in a frame saw machine used in the lumber mill.

Specific Outcome 14.2: Hang a set of frame saw blades in a frame saw machine.

Specific Outcome 14.3: Check the alignment of blades after hanging in a frame saw machine.

Specific Outcome 14.4: Check the condition of all tools and gauges used to control the set up of a frame saw machine used in the lumber mill.

Specific Outcome 14.5: Check the condition of the important frame saw machine parts.

Specific Outcome 14.6: Check the timing of operating sequences on automatic frame saw machines.

15. Title: Set up and operate primary log breakdown facilities in green timber processing area of lumber mill

- Specific Outcome 15.1: Collect all the prescribed setting up tools and equipment and log cutting tools (blades, knives) for the individual primary log breakdown and ancillary materials handling equipment.
- Specific Outcome 15.2: Set up the primary log breakdown facilities equipment and install the required cutting tools, to prescribed standards, in the prescribed manner.
- Specific Outcome 15.3: Operate primary log breakdown equipment in the prescribed manner to convert round logs into wet sawn lumber of prescribed dimensions and standards.
- Specific Outcome 15.4: Control the throughput and quality to maintain prescribed standards.
- Specific Outcome 15.5: Carry out prescribed routine maintenance and lubrication of log breakdown and ancillary handling equipment.

16. Title: Set up and operate secondary log breakdown facilities in green timber processing area of lumber mill

- Specific Outcome 16.1: Collect all the prescribed setting up tools and equipment and green lumber cutting tools (blades, knives) for the individual secondary log breakdown and ancillary materials handling equipment.
- Specific Outcome 16.2: Set up the secondary log breakdown facilities equipment and install the required cutting tools, to prescribed standards, in the prescribed manner.
- Specific Outcome 16.3: Operate secondary log breakdown equipment in the prescribed manner to convert cants etc. into green lumber of prescribed thickness.
- Specific Outcome 16.4: Control the throughput and quality to maintain prescribed standards.
- Specific Outcome 16.5: Carry out prescribed routine maintenance and lubrication of secondary log breakdown and ancillary handling equipment.

17. Title: Control lumber grading

- Specific Outcome 17.1: Check that relevant lumber grading facility is prepared
- Specific Outcome 17.2: Check that the products to be graded have been identified, collected and presented at the grading facility.
- Specific Outcome 17.3: Control the actual grading process.
- Specific Outcome 17.4: Oversee the correct sorting and assembling into parcels of graded lumber with similar dimensions and graders' markings.
- Specific Outcome 17.5: Oversee the correct stacking, stamping/marketing and strapping of graded and marked products into prescribed size parcels for dispatch.

18. Title: Set up and operate conversion equipment in dry mill

- Specific Outcome 18.1: Access and assemble the necessary tools, instruments, equipment and cutting tools required for setting up this conversion equipment.
- Specific Outcome 18.2: Install and set up conversion tools / cutting blades / knives to produce thinner and narrower products.
- Specific Outcome 18.3: Operate conversion equipment to convert dried lumber into thinner and narrower length products.

Specific Outcome 18.4: Monitor quality of product produced.

Specific Outcome 18.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area

19. Title: Produce Finger-jointing lumber

Specific Outcome 19.1: Explain the purpose and process of setting up Finger Joint Cutter Machine

Specific Outcome 19.2: Explain purpose and process of establishing Finger Joints with the correct profile dimensions

Specific Outcome 19.3: Explain the purpose and process of sorting only approved lumber to accepted specification

Specific Outcome 19.4: Explain that the purpose and process of stacking and distributing graded jointed lumber to the correct destination

Specific Outcome 19.5: Explain the purpose and process of cross cutting, stacking and curing of finger jointed lumber

Specific Outcome 19.6: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area

20. Title: Produce Laminated lumber

Specific Outcome 20.1: Explain the purpose and process of applying glue to laminates.

Specific Outcome 20.2: Explain the purpose and process of laminate assembly in the press

Specific Outcome 20.3: Explain the purpose and process of applying pressure and using a torque wrench

Specific Outcome 20.4: Explain the purpose and process of applying heat for correct curing

Specific Outcome 20.5: Explain the purpose and process of releasing pressure and removal of baulks from the press

Specific Outcome 20.6: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area

No. 261

8 March 2002

NATIONAL CERTIFICATE IN SAW DOCTORING NQF LEVEL 4**Field:** Agriculture and Nature Conservation.**Sub-field:** Forestry and Wood Technology.**Level:** 4**Credit:** 131**RATIONALE FOR THE QUALIFICATION**

NOTE: Saw doctoring is the activity concerned with keeping all the cutting tools used in a lumber mill, e.g. saw blades, planer knives etc, in good working order. There are currently two basic types of sawing machines which typify individual South African lumber mills, which require different types of saw doctoring, i.e. Band-saws and Frame-saws. There is however no differentiation in the learning programme between the two for the learner at NQF Level 4

- The typical range of learners is the currently employed, unemployed and other persons, who want to enter a learning programme to obtain a National Certificate in Wood Technology: Lumber Milling (Saw Doctoring) at NQF Level 4, to continue building a career path in this industry.
- These learners, once qualified, will be able to effectively and efficiently work as head saw doctors/head saw filers or saw doctor managers, on all tasks that saw doctors are responsible for at this level, in the lumber mill
- South African lumber millers are facing an increasing demand for better quality products at more competitive prices. This is leading to an increased demand for more knowledgeable and better skilled personnel to produce such products. Historically this industry experienced various forms of protection. Lumber mill personnel at the lower levels were only exposed to unplanned, periodic, ad-hoc learning programmes, which did not establish an appropriately trained workforce. All protection has now been removed. This industry is now part of the global market, and it must be competitive in price and quality to survive. It can only achieve this through improved knowledge and skills levels. The new education and training dispensation can deliver this. Therefore a demand, which will increase in the future.
- This qualification equips learners with identified competencies in knowledge and skills at NQF Level 4 and it provides a basis for further learning at NQF Level 5. The exit level outcomes, which embody these competencies in knowledge and skills are listed in paragraph 8 below. The fundamental outcomes as well as the non-industry specific core outcomes required at this level, also provide the learner with building blocks for a learning pathway outside this industry. The choice of electives allows the learner the option of continuing his/her learning in any of three other areas in the lumber milling field.
- The learning programme, which leads to this qualification, produces a person who is knowledgeable about and appropriately skilled in performing the relevant tasks in the green timber processing area. Persons without any training or with another type of training, or persons who had undergone the ad-hoc type of training which was prevalent under the previous dispensation, will not be of the same quality for this work than a learner with this qualification
- Improved levels of knowledge and skills lead to greater ability to produce at more competitive costs and better quality, increased sales, greater profits, more personal income, which will impact favourably both on the society and the economy of the country.

PURPOSE OF QUALIFICATION

A learner acquiring this qualification will be able to carry out his/her prescribed responsibilities in a knowledgeable and skillful manner as a supervisor/manager of all the activities that take place in the **saw doctoring area** in a lumber mill as prescribed in the unit standards for NQF Level 4 in this field.

He/she will be able to perform the relevant tasks in this workplace to the prescribed standards, while correctly following the prescribed work procedures, and the health and safety and environmental protection measures applicable to the **saw doctoring area** for NQF Level 4.

The learner will be able to interpret and comply with the prescribed aspects of the relevant legislation impacting on his/her work situation at this level.

He/she will be able to explain the aspects of Computer Literacy and Quality Assurance that are prescribed for this level in **saw doctoring**, and use the skills these offer him/her correctly where relevant.

This learner will be able to describe the influence of the structure of wood, its properties and certain production factors on its final quality.

This qualification provides the qualifying learner with legal proof of having achieved the prescribed levels of knowledge and practical competence, where up till the present time, this only existed for tertiary educated persons.

The learning programme that leads to this qualification improves the operating ability and therefore the earning ability of the qualifier, which must contribute to the social and economic development of the country.

This qualification qualifies a person who has successfully demonstrated his/her knowledge levels and competence in the skills prescribed for Wood Technology: Lumber Milling (**Saw Doctoring**) for NQF Level 4, to enroll for an NQF Level 5 Learnership and Qualification in this domain. It ensures a higher step on a structured career path for the learner. This Qualification forms part of the Learnership in Wood Technology: Lumber Milling (**Saw Doctoring**) (NQF Level 4), which, together with three other qualifications at this level, constitute the fourth tier or level of the NQF framework for the Lumber Milling Industry.

It facilitates access to and mobility within learning pathways in Lumber Milling and other Wood Technology learning pathways.

This qualification supports the National Qualifications Framework regarding access, mobility and progression, quality of learning, redress of unfair discrimination and contribution to personal development and social and economic development of the nation

ACCESS TO QUALIFICATION

This Qualification is achievable by any person who can demonstrate the knowledge and skills levels, required by the fundamental, core and elective unit standards on which this qualification is based. Fitness for enrolment for the Learnership to achieve this Qualification is entirely the prerogative of the Learner, in consultation with the relevant employer and/or provider/s of the learning programme. Prospective learners do however have to note that certain tasks will be physically demanding. Acceptance for enrolment is universal.

LEARNING ASSUMED TO BE IN PLACE

It will be assumed that a learner who registers for a learnership to achieve this qualification, will have successfully mastered the following outcomes:

(Fundamental learning)

- communicate orally and in writing to standards equivalent to NQF Level 3 requirements
- exhibit mathematical skills equivalent to NQF Level 3 requirements

(Core learning)

- demonstrate understanding of the structure of wood and how it relates to its appearance, strength and water holding.
- Demonstrate understanding of sawing and machining defects produced during timber processing in lumber mill
- Demonstrate understanding of technology applicable to use of grinding wheels made from advanced/specialised materials, in saw and cutter maintenance in lumber mill
- Level and tension circular saws in lumber mill
- Set up circular saw blades in machines for processing timber in lumber mill
- Operate automatic stellite tipping and profile grinding machines in saw shop of lumber mill
- Design and make tooth profile templates for saws and cutters used in machines in lumber mill
- Maintain and set up cutter blocks with profiled and disposable cutters for machines used in lumber mill
- Maintain and set up chipper knives and anvils in chipper/hogger machines in lumber mill

BAND-SAW OPTION

- Level and tension wide band-saw blades in saw shop of lumber mill
- set up wide blade band-saw machines used in lumber mill
- Maintain wide blade band-saw wheel faces on band-saws used in lumber mill
- set up log carriage of wide blade band-saw in lumber mill
- Maintain narrow band-saw blades used in lumber mill
- Set up narrow band band-saw machines in lumber mill

FRAME-SAW OPTION

- Level and tension frame-saw blades used in lumber mill
- Set up/hang frame-saw blades in frame-saw machines used in lumber mill
- Control set-up of frame-saw machine in lumber mill

PLUS,

- Perform these tasks according to the work procedures of the enterprise, and subject to the relevant safety and health prescriptions and the applicable environmental management principles,
- Demonstrate understanding of the relevant aspects of the Occupational Health and Safety Act, the ISO 14 000 principles
- Demonstrate understanding of the relevant aspects of the Labour Relations Act regarding Committee for Conciliation Mediation and Arbitration procedures, unfair dismissal and unfair labour practice
- Demonstrate understanding of the relevant aspects of the Employment Equity Act regarding affirmative action procedures, monitoring, enforcement and legal procedure
- Demonstrate understanding of the relevant aspects of the Skills Development Act regarding learnerships, learner rights, employer rights, provider rights, contracts
- Demonstrate understanding of the relevant aspects of the Basic Conditions of Employment Act regarding employment contract, employment criteria, termination of employment
- Demonstrate understanding of the relevant aspects of Business Principles regarding financial management basics, budgeting principles
- Demonstrate understanding of the relevant aspects of Computer Literacy regarding software packages and their use
- Demonstrate understanding of the relevant aspects of Environmental Management principles
- Demonstrate understanding of the relevant aspects of Quality Assurance regarding quality systems, SABS specifications, ISO 9000 principles

(Elective Learning)

- Demonstrate understanding of the relevant details of green timber processing, lumber grading, or dry mill conversion, or finger jointing and laminating
- Demonstrate understanding of relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) (c) regarding calculations of speed/time, weight/density, fractions and percentages, linear graphs and moving averages

(Cross-field Outcomes)

- Solve problems and make decisions regarding the activities in the relevant workplace; lead the other workers in this workplace; carry out the production programme; collate and analyse data and report results to relevant person/s; assist in training learners in this workplace; assume full responsibility for all equipment, tools and instruments used in this workplace.

EXIT LEVEL OUTCOMES

The qualifying learner can:

Outcome 1

- Describe and carry out his/her prescribed responsibilities in a knowledgeable and skillful manner as a manager of all the activities that take place in the **saw doctoring area** in a lumber mill, as prescribed in the unit standards for NQF Level 4 in this field.

Associated assessment criteria

- The learner's description demonstrates knowledge of the management principles applicable to his/her area of authority, which complies with the requirements prescribed for NQF Level 4
- The learner's description is given in a clear and understandable manner
- The learner performs the management of the various aspects that control the operation of the green timber processing area, in the prescribed manner
- The correct interaction of the learner with the people involved in the production activities in his/her area of authority, and his/her decision making and planning ability, ensures that the prescribed production targets of the enterprise are achieved
- The learner ensures that the workers in his/her area of authority, i.e. the **saw doctoring area**, are motivated, guided and trained in the prescribed manner in the relevant production and related activities.

Outcome 2

- Demonstrate the level of knowledge and understanding required at NQF level 4, of the prescribed work procedures, the safety and health and environmental protection measures in **saw doctoring**, by describing and performing these correctly

Associated assessment criteria

- The learner's description demonstrates a knowledge and understanding of the work procedures, safety and health, and environmental protection measures, which complies with the prescriptions for the NQF Level 4 in **saw doctoring**
- The learner's description is given in a clear and understandable manner
- The procedures prescribed for the relevant tasks regarding the work activity, safety and health and environmental protection measures, are applied correctly
- The learner's correct guidance and motivation of the workers in the performance of these activities ensures that the relevant tasks are performed as prescribed

Outcome 3

- Interpret, explain verbally or in writing, and comply with the prescribed aspects of legislation for NQF Level 4, that impacts on his/her work situation, relating to the Labour Relations Act, the Employment Equity Act, and the Basic Conditions of Employment Act

Associated assessment criteria

- The learner's explanation of the prescribed aspects of the relevant legislation proves that he/she has the required level of knowledge and understanding of these aspects
- The prescribed aspects of the relevant legislation are interpreted and explained correctly
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct legal terminology is used in the explanation
- The learner in his/her work situation correctly complies where relevant, with the prescribed aspects of the relevant legislation

Outcome 4

- Demonstrate the level of knowledge and understanding required at this level, regarding computer software packages relevant to lumber milling and their use, by explaining correctly the technology involved and correctly applying these programmes

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The relevant software programmes are operated with the prescribed level of skill

Outcome 5

- Demonstrate the level of knowledge and understanding required at NQF level 4, of quality control and assurance in the **saw doctoring** area, by correctly explaining the procedures and applying these with the prescribed level of skill.

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The procedures for quality control and assurance in **saw doctoring** are performed in the correct manner which ensures the achievement of the prescribed outcomes

Outcome 6

- Demonstrate the level of knowledge and understanding required at NQF Level 4, of the application of the prescribed aspects of productivity enhancement in the **saw doctoring** area, by correctly explaining the procedures, and applying these with the prescribed level of skill

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The procedures for productivity enhancement in **saw doctoring** are performed in the correct manner which ensures the achievement of the prescribed outcomes

Outcome 7

- Demonstrate the knowledge and understanding required at NQF level 4, of the relevant details of the material being processed, by correctly describing the influence of the structure of wood, its properties and certain production factors on its quality

Associated assessment criteria

- The required level of knowledge and understanding of wood as a raw material, is proven by the correct verbal or written explanation of the influence of the structure of wood, its properties and certain production factors, on its quality
- The details regarding the influence of the structure of wood, its properties and certain production factors on its quality, are described correctly
- The correct wood technological terminology is used in the explanation

Every one of these exit level outcomes will be developed further in the learning programme for NQF Level 5 Lumber Milling: **Saw Doctoring**, in order to comply with the knowledge and skills levels required at that level.

The successful achievement of all of the above exit level outcomes, is therefore a requirement for those learners who wish to continue their learning in this field at NQF Level 5.

Any learner who does not want to complete this qualification, can exit the learning programme after achieving outcomes 1 and 2, in order to accumulate credits for example for further learning in related learning pathways in lumber milling, or for other fields related to Wood Technology.

INTERNATIONAL COMPARABILITY

Information gained from visits to and from

- The British Columbia Institute for Technology, Vancouver Canada
 - The community college at Ashville in North Caroline, U.S.A
 - The Forestry Training Centre at Rotorua, New Zealand
 - The Technical and Further Education (TAFE) training institute in Mt Gambier Australia
- influenced the thinking on this and other Wood Technology qualifications.

Qualifications from those institutions and these are not exactly the same but learning programmes and hours of learning are comparable. The inclusion of labor legislation and other non-industry specific subjects make it even more uniquely South African.

The institutions listed above are all internationally recognized as centres of excellence in training and education in the Forestry/Wood Technology field.

INTEGRATED ASSESSMENT

The unit standards on which this qualification is based, describe the competent performance in **Saw Doctoring**, and lay down the criteria by which competence should be judged, as well as the range of circumstances in which competence should be demonstrated.

For each unit standard there are corresponding performance assessment criteria, which describe the evidence an assessor should use to determine a learner's competence.

Integrated assessment methods and tools for this qualification must allow the learner to demonstrate that he/she has acquired the prescribed knowledge of and can safely and efficiently apply the required competence in the relevant aspects of **Saw Doctoring**, as described in paragraph 6 (Purpose of this qualification), and paragraph 8 (Exit-level outcomes)

These tools are written or oral tests to determine level of knowledge and on-the-job observation, to determine applied competence, as summative assessment, for all the exit level outcomes at the completion of the learning programme.

The tools that can be used for formative assessment during and at the completion of the learning programme for each of the exit level outcomes, are oral testing, on the-job-observation, role-play situations and structured classroom discussions.

The assessor/s can decide which method will be the most appropriate in the particular situation where the assessment is taking place.

A portfolio of evidence of the outcomes of all these assessments for each learner must be built up for record purposes.

This portfolio may also include, inter alia

- Written statements from e.g. current or previous employer, colleagues, peers, managers, i.e. persons who can supply relevant references
- Relevant awards or certificates
- Previous assessment records
- Journals/logbook, records of work performance

The currently unemployed who followed a learning programme to achieve this qualification, as well as persons seeking recognition of prior learning, can be assessed in the same way

RECOGNITION OF PRIOR LEARNING

This qualification may be achieved in part or in whole by recognition of prior learning. The candidate in this case must be evaluated/assessed in the same manner as described in paragraph 10 above.

ARTICULATION POSSIBILITIES

The choice of elective learning components allows the learner to change to another pathway in lumber milling at the same level, or at the next higher level.

The fundamental and non-industry specific core learning components will equip the learner with credits which will be useful in other fields of learning that the learner might wish to change to at any future stage.

MODERATION OPTIONS

All providers offering the learning to achieve this qualification must be registered with the ETQA division of FIETA.

All assessor/s must be registered with the ETQA division of FIETA, and must comply with the requirement for assessors as prescribed by this SETA. In addition the assessor/s must at least have the knowledge and skills levels in this field equivalent to those required by the NQF at Level 4, plus two years of practice in this field as a worker or expert consultant or provider. All moderators moderating the assessment of learners for this qualification must be registered with the ETQA Division of FIETA.

NOTES

The Unit Standards for the "Fundamental" and those marked with asterisks in the "Core" component of learning in the qualification matrix will have to be drawn from other organising fields, or will have to be developed.

QUALIFICATION MATRIX FOR: National Certificate In Saw Doctoring NQF Level 4

LEVEL 4	FUNDAMENTAL	CREDIT	CORE	CREDIT	ELECTIVES	CREDIT
	Literacy and Communication Skills	20	Demonstrate understanding of influence of wood structures, properties and production factors on its quality	15	Demonstrate understanding of relevant aspects of Lumber Milling maths	15
	Mathematical literacy	16	Manage maintenance of tools etc in saw shop	5	Manage production in green timber processing	15
			Follow procedures to assist with optimising machine productivity	5	Manage production in lumber grading	15
			Manage budget for saw shop	5	Manage production in dry mill	15
			Manage production in relevant workplace	15	Manage production in FJ & Laminating	15
			Manage workforce in this workplace	15	Demonstrate understanding of principles and application of productivity measures	20
			Manage safety and health in this workplace	15		
			* Demonstrate understanding of relevant aspects of Labour Relation Act	1		
			* Demonstrate understanding of relevant aspects of Employment Equity Act	1		
			* Demonstrate understanding of relevant aspects of Basic Conditions of Employment Act	1		
			* Demonstrate understanding of relevant aspects of Environmental management	1		
			* Demonstrate understanding of relevant aspects of Quality Assurance	1		
TOTAL		36		80	at least	15
TOTAL	LEVEL 4	131				

SAW DOCTORING NQF LEVEL 4**UNIT STANDARDS TITLES AT NQF LEVEL 4**

Industry specific and unit standards available:-

- Title 1. Manage production in saw doctoring area in lumber mill.
- Title 2. Manage workforce in saw doctoring area in lumber mill.
- Title 3. Manage safety, health and environmental protection in saw doctoring area in lumber mill.
- Title 4. Manage maintenance of all machines, tools and equipment used of saw and cutter maintenance in lumber mill.
- Title 5. Follow procedures to assist with optimising machine productivity in lumber mill.
- Title 6. Manage budget of saw doctor shop in lumber mill.
- Title 7. Demonstrate understanding of influence of wood structures, properties and certain production factors on wood quality.

And one or more of the following:-

- Title 8. Manage production in green timber processing area
- Title 9. Manage production in lumber grading
- Title 10. Manage production in dry mill
- Title 11. Manage production in FJ & Laminating

Unit standards for the following non industry specific learning components were not available at the time of the development of this qualification and will have to be sourced from the relevant organizing fields/NSB's.

- Title 12. Demonstrate understanding of the relevant aspects of the Labour Relations Act regarding negotiations and the South African labour market.
- Title 13. Demonstrate understanding of the relevant aspects of the Employment Equity Act regarding its general provisions.
- Title 14. Demonstrate understanding of the relevant aspects of the Basic Conditions of Employment Act regarding variations in basic conditions.
- Title 15. Demonstrate understanding of the relevant aspects of Computer Literacy regarding networking and systems.
- Title 16. Demonstrate understanding of the relevant aspects of Environmental Management regarding ISO 14 000 and other systems.
- Title 17. Demonstrate understanding of the relevant aspects of Quality Assurance regarding quality audits.
- Title 18. Demonstrate understanding of the principles and application of productivity measures.
- Title 19. Demonstrate understanding of relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) (c) regarding ratios, calculating forces, pressures, calculations for yields, recoveries, material usage, basic trigonometry, stress calculations.

UNIT STANDARDS TITLES AND SPECIFIC OUTCOMES AT NQF LEVEL 4**1. Title: Manage production in saw doctoring area workplace in lumber mill.**

Specific Outcome 1.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 1.2: Record the progress of these production runs and quality of output.

Specific Outcome 1.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 1.4: Adapt procedures if necessary, to achieve original output targets.

Specific Outcome 1.5: Analyze data on completed production runs to provide information for future improvements.

2. Title: Manage workforce in saw doctoring area in lumber mill.

Specific Outcome 2.1: Lead, communicate with and motivate the personnel employed in the relevant workplace in the lumber mill.

Specific Outcome 2.2: Manage the education and training of personnel.

Specific Outcome 2.3: Apply the relevant disciplinary and grievance procedures.

Specific Outcome 2.4: Keep employment records of personnel involved in the activities of the relevant workplace.

3. Title: Manage safety, health and environmental protection in the saw doctoring area in lumber mill.

Specific Outcome 3.1: Ensure that the health and safety measures and environment protection procedures prescribed for the relevant workplace are understood and adhered to.

Specific Outcome 3.2: Ensure that these measures and procedures are applied as prescribed to make the workplace safe for workers and free from health hazards, and to prevent environmental contamination.

Specific Outcome 3.3: Train all workers in this workplace in emergency drills, practical first aid application and handling environmental pollution procedures relevant to this workplace.

Specific Outcome 3.4: Ensure that first aid materials and tools and equipment for emergency contingencies, are clearly visible and easily accessible.

Specific Outcome 3.5: Ensure the accurate recording of first aid activities, emergency situations and cases of environmental pollution, indicating reasons for occurrence, remedial actions taken, and results/outcomes.

4. Title: Manage maintenance of all machines, tools and equipment used in saw and cutter maintenance in lumber mill.

Specific Outcome 4.1: Develop a maintenance programme for all saw and cutter maintenance facilities in the lumber mill.

Specific Outcome 4.2: Control the implementation of the saw and cutter maintenance facilities' maintenance programme.

Specific Outcome 4.3: Maintain prescribed saw doctor shop asset registers.

5. Title: Follow procedures to assist with optimising machine productivity in lumber mill.

Specific Outcome 5.1: Carry out technical evaluations of all lumber processing machines in the Lumber mill.

Specific Outcome 5.2: Correct identified saw and cutter related problems.

Specific Outcome 5.3: Monitor productivity of all (log and lumber) processing machines in the Lumber mill.

Specific Outcome 5.4: Improve saw and cutter machine productivity in the lumber mill.

6. Title: Manage budget of saw doctor shop in lumber mill.

Specific Outcome 6.1: Draw up the operating and maintenance budget for the saw doctor shop as prescribed.

Specific Outcome 6.2: Draw up correctly the financial budget of the saw doctor shop for approval.

Specific Outcome 6.3: Control the execution of the approved budget for the saw doctor shop.

Specific Outcome 6.4: Report on budget control of the saw doctor shop as prescribed.

7. Title: Demonstrate understanding of influence of wood structures, properties and certain production factors on wood quality.

Specific Outcome 7.1: Explain the wood quality requirements generally specified by the main users of wood products.

Specific Outcome 7.2: Describe the effect of wood growth properties on these quality requirements.

Specific Outcome 7.3: Describe the effect of machined wood properties on these quality requirements.

Specific Outcome 7.4: Describe the effect of the drying out process of wood on these quality requirements.

8. Title: Manage production in green timber processing area

Specific Outcome 8.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 8.2: Record the progress of these production runs and quality of output.

Specific Outcome 8.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 8.4: Adapt procedures if necessary, to achieve original output targets.

Specific Outcome 8.5: Analyze data on completed production runs to provide information for future improvements.

9. Title: Manage production in lumber grading.

Specific Outcome 9.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 9.2: Record the progress of these production runs and quality of output.

Specific Outcome 9.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 9.4: Adapt procedures if necessary, to achieve original output targets.

Specific Outcome 9.5: Analyze data on completed production runs to provide information for future improvements.

10. Title: Manage production in dry mill.

Specific Outcome 10.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 10.2: Record the progress of these production runs and quality of output.

Specific Outcome 10.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 10.4: Adapt procedures if necessary, to achieve original output targets.

Specific Outcome 10.5: Analyze data on completed production runs to provide information for future improvements.

11. Title: Manage production in FJ & Laminating.

Specific Outcome 11.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 11.2: Record the progress of these production runs and quality of output.

Specific Outcome 11.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 11.4: Adapt procedures if necessary, to achieve original output targets.

Specific Outcome 11.5: Analyze data on completed production runs to provide information for future improvements.

NATIONAL CERTIFICATE IN LUMBER DRYING NQF LEVEL 1

Field: Agriculture and Nature Conservation.

Sub-field: Forestry and Wood Technology.

Level: 1

Credit: 146

RATIONALE FOR THE QUALIFICATION

NOTE: Lumber Drying in the lumber mill means those activities that start with the activity of pulling green/wet lumber from the green chain, at the end of the wet mill. This lumber is then sorted for dimension, stacked in loads for drying, and then moved/transported to the drying facilities. This can be the air-dry yard or the lumber drying kilns. The drying process then follows after which the load of dried lumber is removed from the drying facility to the next stage of the lumber milling process.

The typical range of learners is the currently employed, unemployed and other persons, who want to enter a learning programme to obtain a National Certificate in Wood Technology: Lumber Milling (Lumber Drying) at NQF Level 1, to start building a career path in this industry.

These learners, once qualified, will be able to effectively and efficiently work as general workers/mill hands, individually or in teams, on tasks they are responsible for at this level in the lumber drying area. South African lumber millers are facing an increasing demand for better quality products at more competitive prices. This is leading to an increased demand for more knowledgeable and better skilled personnel to produce such products. Historically this industry experienced various forms of protection. Lumber mill personnel at the lower levels were only exposed to unplanned, periodic, ad-hoc learning programmes, which did not establish an appropriately trained workforce. All protection has now been removed. This industry is now part of the global market, and it must be competitive in price and quality to survive. It can only achieve this through improved knowledge and skills levels. The new education and training dispensation can deliver this. Therefore a demand, which will increase in the future.

This qualification equips learners with identified competencies in knowledge and skills at NQF Level 1 and it provides a basis for further learning at NQF Level 2. The exit level outcomes, which embody these competencies in knowledge and skills are listed in paragraph 8 below. The fundamental outcomes as well as the non-industry specific core of the unit standards required at this level, also provide the learner with building blocks for a learning pathway outside this industry. The choice of electives allows the learner the option of continuing his/her learning in any of four other areas in the lumber milling field. The learning programme, which leads to this qualification, produces a person who is knowledgeable about and appropriately skilled in performing the relevant tasks in the Lumber Drying area. Persons without any training or with another type of training, or persons who had undergone the ad-hoc type of training which was prevalent under the previous dispensation, will not be of the same quality for this work than a learner with this qualification.

Improved levels of knowledge and skills lead to greater ability to produce at more competitive costs and better quality, increased sales, greater profits, more personal income, which will impact favourably both on the society and the economy of the country.

PURPOSE OF THE QUALIFICATION

A learner acquiring this qualification will be able to operate as a knowledgeable and appropriately skilled mill hand (general worker), in an effective and efficient manner, either as a member of a working team or an individual when required, performing the tasks prescribed for this level in the unit standards for processing tree stems into sawn lumber i.e. lumber drying.

The learner will know and understand the general basics of lumber milling and the relevant details of lumber drying. He/she will be able to perform the relevant tasks in this workplace to the prescribed standards, while correctly following the prescribed work procedures, and the health and safety and environmental protection measures applicable to the lumber drying area. The learner will be able to interpret and comply with the prescribed aspects of certain legislation impacting on his/her work situation. The learner will be able to communicate effectively, orally or in writing, with co-workers and responsible persons in this workplace.

This qualification provides the qualifying learner with legal proof of having achieved prescribed levels of knowledge and practical competence, where up till the present time, this only existed for tertiary educated persons.

The learning programme that leads to this qualification improves the operating abilities and therefore the earning ability of the qualifier, which must contribute to the social and economic development of the country.

This qualification qualifies a person who has successfully demonstrated his/her knowledge levels and competence in the skills prescribed for Wood Technology: Lumber Milling (Lumber Drying) for NQF Level 1, to enroll for an NQF Level 2 Learnership and Qualification in this domain. It ensures a foundation for a structured career path for the learner.

This Qualification forms part of the Learnership in Wood Technology: Lumber Milling (Lumber Drying) (NQF Level 1), which, together with 3 other qualifications at this level, constitute the basis of the NQF for Wood Technology. It facilitates access to and mobility within learning pathway in Lumber Milling and other Wood Technology learning pathways.

This qualification supports the objectives of the National Qualification Framework regarding access, mobility and progression, quality of learning, redress of unfair discrimination and contribution to personal development and social and economic development of the nation.

ACCESS TO QUALIFICATION

There is open access to this qualification. This Qualification is achievable by any person who can demonstrate the knowledge and skills levels, required by the fundamental, core and elective unit standards on which this qualification is based. Prospective learners do however have to note that certain tasks will be physically demanding.

LEARNING ASSUMED TO BE IN PLACE

A learner registering for this qualification, must have literacy, communication and mathematical skills equivalent to Grade 8 schooling or ABET Level 3.

EXIT-LEVEL OUTCOMES

The qualifying learner can:

Outcome 1

Demonstrate the required level of knowledge and understanding of the general basics of lumber milling and the relevant details of **lumber drying**, by describing these verbally or in writing, in a clear and understandable manner, using the correct wood technological terminology

Associated assessment criteria

The description proves that the learner possesses the required level of knowledge and understanding of the subject field

The description gives the correct details of the relevant aspects of lumber milling and **lumber drying**

The description is given in a clear and understandable manner

The correct wood technological terminology is used

Outcome 2

Perform the prescribed tasks of a mill hand (general worker), as a working team member or as an individual, in **lumber drying**, showing the ability to co-operate, and understand and execute instructions.

Associated assessment criteria

The procedures prescribed for the relevant tasks are applied correctly

The outcomes of the performance of the relevant tasks comply with the prescribed targets

The learner co-operates successfully as a working team member

Instructions are executed as prescribed

Outcome 3

Demonstrate the level of knowledge and understanding required at NQF level 1, of the prescribed work procedures, the safety and health and environmental protection measures in **lumber drying**, by describing and performing these correctly

Associated assessment criteria

The description proves that the learner has achieved the level of knowledge and understanding prescribed for NQF Level 1 in **lumber drying**

The details given in the description are correct

The description, verbally or written, is given in a clear and structured manner

The correct technological terminology is used

The relevant procedures and measures are performed as prescribed

Outcome 4

Interpret, explain verbally or in writing, and comply with the prescribed aspects of legislation that impacts on his/her work situation, relating to the OSH Act, the Labour Relations Act and the Skills Development Act

Associated assessment criteria

The explanation proves that the learner has the level of knowledge and understanding of the subject matter which ensures correct interpretation and compliance

The details of the prescribed aspects of the relevant legislation are interpreted and explained correctly

The explanation of the interpretation is given in a clear and understandable manner

The correct legal terminology is used in the explanation

The learner in his/her work situation correctly complies with the prescribed aspects of the relevant legislation

Every one of these exit level outcomes will be developed further in the learning programme for **Lumber Milling: Lumber Drying**, NQF Level 2 in order to comply with the knowledge and skills levels required at that level.

The successful achievement of all of the above exit level outcomes, is therefore a requirement for those learners who wish to continue their learning in this field at NQF Level 2.

Any learner who does not want to complete this qualification, can exit the learning programme after achieving outcomes 1 and 2, in order to accumulate credits for example for further learning in related learning pathways in lumber milling, or for other fields related to Wood Technology.

INTERNATIONAL COMPARABILITY

Information gained from visits to and from

The British Columbia Institute for Technology, Vancouver Canada

The community college at Ashville in North Caroline, U.S.A

The Forestry Training Centre at Rotorua, New Zealand

The Technical and Further Education (TAFE) training institute in Mt Gambier Australia

influenced the thinking on this and other Wood Technology qualifications.

Qualifications from those institutions and these are not exactly the same but learning programmes and hours of learning are comparable. The inclusion of labour legislation and other non-industry specific subjects make it even more uniquely South African.

The institutions listed above are all internationally recognized as centres of excellence in training and education in the Forestry/Wood Technology field.

INTEGRATED ASSESSMENT

The unit standards on which this qualification is based, describe the competent performance in Lumber Drying, and lay down the criteria by which competence should be judged, as well as the range of circumstances in which competence should be demonstrated. For each unit standard there are corresponding performance assessment criteria, which describe the evidence an assessor should use to determine a learner's competence.

Integrated assessment methods and tools for this qualification must allow the learner to demonstrate that he/she has acquired the knowledge of and can safely and efficiently apply the required competence in the relevant aspects of activities of Lumber Drying, as described in paragraph 6 (purpose of this qualification) and paragraph 8 (exit level outcomes). These tools are written or oral test to determine level of knowledge and on-the-job observation to determine applied competence, as summative assessment, for all the exit level outcomes at the completion of the learning programme. The tools that can be used for formative assessment during and at the completion of the learning programme for each of the exit level outcomes, are oral testing, on-the-job observation and role-play situations. The assessor/s can decide which method will be the most appropriate in the particular situation where the assessment is taking place.

A portfolio of evidence of the outcomes of all these assessments for each learner must be built up for record purposes.

This portfolio may also include, inter alia:

Written statements from e.g. current or previous employer, colleagues, peers, managers, i.e. persons who can supply relevant references.

Relevant awards or certificates.

Previous assessment records.

Journals/logbook, records of work performance.

The currently unemployed who followed a learning programme to achieve this qualification, as well as persons seeking recognition of prior learning, can be assessed in the same way.

RECOGNITION OF PRIOR LEARNING

This qualification may be achieved in part or in whole by recognition of prior learning. The candidate in this case must be evaluated/assessed in the same manner as described in paragraph 10 above.

ARTICULATION POSSIBILITIES

The choice of elective learning components allows the learner to change to another pathway in lumber milling at the same level, or at the next higher level.

The fundamental and non-industry specific core learning components will equip the learner with credits which will be useful in other fields of learning that the learner might wish to change to at any future stage.

MODERATION OPTIONS

All providers offering the learning to achieve this qualification must be registered with the ETQA division of FIETA.

All assessor/s must be registered with the ETQA division of FIETA, and must comply with the requirement for assessors as prescribed by this SETA. In addition, the assessor/s must at least have

knowledge and skills levels in this field equivalent to those required by the NQF at level 4, plus two years of practice in this field as a worker or expert consultant or provider. All moderators moderating the assessment of learners for this qualification must be registered with the ETQA Division of FIETA.

NOTES

The Unit Standards for the "Fundamental" and those marked with asterisks in the "Core" component of learning in the qualification matrix will have to be drawn from other organising fields, or will have to be developed.

QUALIFICATION MATRIX FOR: National Certificate In Lumber Drying NQF Level 1

LEVEL 1	FUNDAMENTAL	CREDIT	CORE	CREDIT	ELECTIVES	CREDIT
	Literacy and Communication Skills	20	Demonstrate understanding of the general basics of lumber milling operation	10	Demonstrate understanding of the relevant details of saw doctor shop	15
	Mathematical literacy	16	Demonstrate understanding of relevant details of lumber drying area	15	Demonstrate understanding of the relevant details of the green timber processing area	15
			Ensure cleanliness in the lumber drying area in the lumber mill	10	Demonstrate understanding of the relevant details of the lumber grading area	15
			Perform manual handling in the lumber drying area in the lumber mill	10	Demonstrate understanding of the relevant details of the dry milling area	15
			* Demonstrate understanding of the relevant aspects of the Occupational Health and Safety Act	3		
			* Demonstrate understanding of the relevant aspects of Labour Relations Act	3		
			* Demonstrate understanding of the relevant aspects of the Skills Development Act	3		
			* Demonstrate understanding of the relevant aspects of environmental protection	3		
			* Demonstrate understanding of the relevant aspects of quality assurance	3		
TOTAL		56	60	60	at least	30
TOTAL	Level 1	146				

LUMBER DRYING NQF LEVEL 1**UNIT STANDARD TITLES AT NQF LEVEL 1**

Industry specific and unit standards available:

- Title 1. Demonstrate understanding of general basics of lumber milling operation
- Title 2. Demonstrate understanding of details of equipment, processes and procedures in lumber drying area in lumber mill.
- Title 3. Ensure cleanliness in lumber drying area in lumber mill.
- Title 4. Perform necessary manual handling in lumber drying area in lumber mil.

And two or more of the following:

- Title 5. Demonstrate understanding of the relevant details of saw doctor shop
- Title 6. Demonstrate understanding of the relevant details of the green timber processing area
- Title 7. Demonstrate understanding of the relevant details of the lumber grading area
- Title 8. Demonstrate understanding of the relevant details of the dry milling area

Unit standards for the following non- industry specific learning components were not available at the time of the development of this qualification and will have to be sourced from the relevant organizing fields/NSB's.

- Title 9. Demonstrate understanding of the general obligations of employers, general duties of employees at work (the Occupational Health and Safety Act)
- Title 10. Demonstrate understanding of the general principles, freedom of association, freedom from victimisation, employer and employee organisations (Labour Relations Act)
- Title 11. Demonstrate understanding of the general principles and requirements of learnerships and qualifications (Skills Development Act)
- Title 12. Have an awareness of pollution factors in workplace
- Title 13. Demonstrate understanding of the basics of quality requirements in processes and products

UNIT STANDARDS TITLES AND SPECIFIC OUTCOMES AT NQF LEVEL 1**1. Title: Demonstrate understanding of general basics of lumber milling operation**

Specific Outcome 1.1: Explain correctly the main purpose of the enterprise's lumber milling operation.

Specific Outcome 1.2: Explain the general layout of the lumber mill.

Specific Outcome 1.3: Explain correctly the sequence of the production phases in the lumber milling process.

Specific Outcome 1.4: Explain correctly the general functions of the major production equipment and stages in the lumber milling operation.

2. Title: Demonstrate understanding of details of equipment, processes and procedures in lumber drying area in lumber mill.

Specific Outcome 2.1: Explain correctly the specifics of the purpose and lay out of the relevant workplace.

Specific Outcome 2.2: Explain correctly the general functions of the major production equipment and stages in this workplace.

Specific Outcome 2.3: Explain correctly the sequence of the production phases in this workplace.

Specific Outcome 2.4: Explain correctly the work procedures, safety and health measures and environmental requirements pertaining to NQF Level 1 requirements for this workplace.

3. Title: Ensure cleanliness in lumber drying area in lumber mill.

Specific Outcome 3.1: Remove waste from all surfaces in the relevant workplace, including from all equipment, tools and the instruments used there.

Specific Outcome 3.2: Remove all waste generated in A above, in the prescribed manner to the designated collection points, at the scheduled times.

Specific Outcome 3.3: Collect and clean all tools and instruments not being used at any one time, as prescribed, and store in the designated storage facility.

Specific Outcome 3.4: Report any obvious malfunction of tools, instruments and equipment detected during the cleaning process, to the relevant person/s for correction.

4. Title: Perform necessary manual handling in lumber drying area in lumber mill.

Specific Outcome 4.1: Locate, identify and assemble items to be manually handled.

Specific Outcome 4.2: Pick up these items for movement to the designated point of delivery.

Specific Outcome 4.3: Move/carry these items to the designated point of delivery.

Specific Outcome 4.4: Deposit (put down) these items at the designated point of delivery.

5. Title: Demonstrate understanding of the relevant details of saw doctor shop

Specific Outcome 5.1: Explain correctly the specifics of the purpose and lay out of the relevant workplace.

Specific Outcome 5.2: Explain correctly the general functions of the major production equipment and stages in this workplace.

Specific Outcome 5.3: Explain correctly the sequence of the production phases in this workplace.

Specific Outcome 5.4: Explain correctly the work procedures, safety and health measures and environmental requirements pertaining to NQF Level 1 requirements for this workplace.

6. Title: Demonstrate understanding of the relevant details of the green timber processing area

Specific Outcome 6.1: Explain correctly the specifics of the purpose and lay out of the relevant workplace.

Specific Outcome 6.2: Explain correctly the general functions of the major production equipment and stages in this workplace.

Specific Outcome 6.3: Explain correctly the sequence of the production phases in this workplace.

Specific Outcome 6.4: Explain correctly the work procedures, safety and health measures and environmental requirements pertaining to NQF Level 1 requirements for this workplace.

7. Title: Demonstrate understanding of the relevant details of the lumber grading area

Specific Outcome 7.1: Explain correctly the specifics of the purpose and lay out of the relevant workplace.

Specific Outcome 7.2: Explain correctly the general functions of the major production equipment and stages in this workplace.

Specific Outcome 7.3: Explain correctly the sequence of the production phases in this workplace.

Specific Outcome 7.4: Explain correctly the work procedures, safety and health measures and environmental requirements pertaining to NQF Level 1 requirements for this workplace.

8. Title: Demonstrate understanding of the relevant details of the dry milling area

Specific Outcome 8.1: Explain correctly the specifics of the purpose and lay out of the relevant workplace.

Specific Outcome 8.2: Explain correctly the general functions of the major production equipment and stages in this workplace.

Specific Outcome 8.3: Explain correctly the sequence of the production phases in this workplace.

Specific Outcome 8.4: Explain correctly the work procedures, safety and health measures and environmental requirements pertaining to NQF Level 1 requirements for this workplace.

No. 263

8 March 2002

NATIONAL CERTIFICATE IN LUMBER DRYING NQF LEVEL 2**Field:** Agriculture and Nature Conservation.**Sub-field:** Forestry and Wood Technology.**Level:** 2**Credit:** 122**RATIONALE FOR THE QUALIFICATION**

NOTE: Lumber Drying in the lumber mill means those activities that start with the activity of pulling green/wet lumber from the green chain, at the end of the wet mill. This lumber is then sorted for dimension, stacked in loads for drying, and then moved/transported to the drying facilities. This can be the air-dry yard or the lumber drying kilns. The drying process then follows after which the load of dried lumber is removed from the drying facility to the next stage of the lumber milling process.

- The typical range of learners is the currently employed, unemployed and other persons, who want to enter a learning programme to obtain a National Certificate in Wood Technology: Lumber Milling (Lumber Drying) at NQF Level 2, to continue building a career path in this industry.
- These learners, once qualified, will be able to effectively and efficiently work as assistant operators and team leaders, on tasks they are responsible for at this level in the relevant workplace, in the lumber drying area.
- South African lumber millers are facing an increasing demand for better quality products at more competitive prices. This is leading to an increased demand for more knowledgeable and better skilled personnel to produce such products. Historically this industry experienced various forms of protection. Lumber mill personnel at the lower levels were only exposed to unplanned, periodic, ad-hoc learning programmes, which did not establish an appropriately trained workforce. All protection has now been removed. This industry is now part of the global market, and it must be competitive in price and quality to survive. It can only achieve this through improved knowledge and skills levels. The new education and training dispensation can deliver this. Therefore a demand, which will increase in the future.
- This qualification equips learners with identified competencies in knowledge and skills at NQF Level 2 and it provides a basis for further learning at NQF Level 3. The exit level outcomes, which embody these competencies in knowledge and skills are listed in paragraph 8 below. The fundamental outcomes as well as the non-industry specific core outcomes required at this level, also provide the learner with building blocks for a learning pathway outside this industry. The choice of electives allows the learner the option of continuing his/her learning in any of four other areas in the lumber milling field.
- The learning programme, which leads to this qualification, produces a person who is knowledgeable about and appropriately skilled in performing the relevant tasks in the lumber drying area. Persons without any training or with another type of training, or persons who had undergone the ad-hoc type of training which was prevalent under the previous dispensation, will not be of the same quality for this work than a learner with this qualification.
- Improved levels of knowledge and skills lead to greater ability to produce at more competitive costs and better quality, increased sales, greater profits, more personal income, which will impact favourably both on the society and the economy of the country.

PURPOSE OF QUALIFICATION

A learner acquiring this qualification will be able to operate as a knowledgeable and appropriately skilled person

in leading a working team in performing the tasks in **lumber drying** prescribed in the relevant unit standards for NQF Level 2, and

in performing the activity of assistance to the responsible person in **lumber drying**, as prescribed in the unit standards for this level, in setting up or preparing production equipment, and using or operating such equipment as stand-by for the responsible person.

He/she will be able to perform the relevant tasks in this workplace to the prescribed standards, while correctly following the prescribed work procedures, and the health and safety and environmental protection measures applicable to the **lumber drying area**.

The learner will be able to interpret and comply with the prescribed aspects of the relevant legislation impacting on his/her work situation.

He/she will be able to explain the aspects of Business Principles, Computer Literacy and Quality Assurance that are prescribed for this level in **lumber drying**, and use the skills these offer him/her where relevant.

The learner will be able to describe the different parts of a tree and its stem on a cross-section, which will be proof that he/she knows and understands the material that is being processed. The learner will be able to evaluate status of reported problems, report effectively to responsible persons, exhibit leadership in leading a work team in the workplace, assist in carrying out the production programme, collate and analyse data, oversee care of and storage of instruments, tools and equipment and communicate effectively with all persons in the **lumber drying area**.

This qualification provides the learner with legal proof of having achieved prescribed levels of knowledge and skills competence, where up till the institution of the current dispensation, this only existed for tertiary educated people.

The learning programme that leads to this qualification improves the operating ability and therefore the earning ability of the qualifier, which must contribute to the social and economic development of the country.

This qualification qualifies a person who has successfully demonstrated his/her knowledge levels and competence in the skills prescribed for Wood Technology: Lumber Milling (Lumber Drying) for NQF Level 2, to enroll for an NQF Level 3 Learnership and Qualification in this domain. It ensures a second step on a structured career path for the learner.

This Qualification forms part of the Learnership in Wood Technology: Lumber Milling (Lumber Drying) (NQF Level 2), which, together with three other qualifications at this level, constitute the second tier or level of the NQF framework for the Lumber Milling Industry.

It facilitates access to and mobility within learning pathways in Lumber Milling and other Wood Technology learning pathways.

This qualification supports the National Qualifications Framework regarding access, mobility and progression, quality of learning, redress of unfair discrimination and contribution to personal development and social and economic development of the nation.

ACCESS TO QUALIFICATION

There is open access to this qualification. This Qualification is achievable by any person who can demonstrate the knowledge and skills levels, required by the fundamental, core and elective unit standards on which this qualifications is based. Prospective learners do however have to note that certain tasks will be physically demanding.

LEARNING ASSUMED TO BE IN PLACE

It will be assumed that a learner who registers for a learnership to achieve this qualification, will have successfully mastered the following outcomes:

(Fundamental learning)

- Unit standards not available at this time
- Literacy and communication skills equivalent to ABET Level 4 or Grade 9

- Mathematical skills equivalent to ABET Level 4 or Grade 9

(Core learning)

Industry specific and Unit standards available

- Demonstrate understanding of the general basics of the lumber milling operation
- Demonstrate understanding of details of equipment, processes and procedures in the lumber drying area
- Ensure cleanliness in the lumber drying area.
- Perform manual handling in the lumber drying area.

Not industry specific and unit standards not available at this time

- Demonstrate understanding of the general obligations of employers, general duties of employees at work (the OSH Act)
- Demonstrate understanding of the general principles, freedom of association, freedom from victimisation, employer and employee organisations (Labour Relations Act)
- Demonstrate understanding of the general principles and requirements of learnerships and qualifications (Skills Development Act)
- Have an awareness of pollution factors in workplace
- Demonstrate understanding of the basics of quality requirements in processes and products

(Elective Learning)

Industry specific and Unit standards available

Any two of the following:

- Demonstrate understanding of the relevant details of the saw doctor shop
- Demonstrate understanding of the relevant details of the green timber processing area
- Demonstrate understanding of the relevant details of the lumber grading area
- Demonstrate understanding of the relevant details of the dry milling area

(Cross-field outcomes)

- Demonstrate understanding of instructions, work effectively and efficiently, individually or as a team member, and report effectively and correctly to the relevant person/s on tasks delegated to him/her in his/her work area in the green timber processing facilities.

EXIT LEVEL OUTCOMES

The qualifying learner can:

Outcome 1

- Describe correctly and carry out the tasks prescribed in the unit standards for NQF Level 2 in **lumber drying**, of leading a work team and lending assistance in setting up or preparing production equipment, and operating such as a stand-by for the responsible person, demonstrating the leadership qualities and communication abilities required by his/her work situation.

Associated assessment criteria

- The learner's description of the procedures involved in his/her prescribed tasks proves that he/she has the level of knowledge and understanding of these as required at NQF Level 2
- The relevant tasks are performed as prescribed
- The learner communicates effectively with the responsible person/s and other workers in his/her work situation and understands and executes instructions regarding the relevant activities correctly
- The learner gives the prescribed quality of leadership to the work team he/she must lead when required
- The learners contribution to the relevant production activity assures that the required delivery/production rate is maintained
- Reported problems in the relevant production activities or workplace are evaluated correctly and the outcomes reported as prescribed to the responsible person.

Outcome 2

- Demonstrate the level of knowledge and understanding required at NQF level 2, of the prescribed work procedures, the safety and health and environmental protection measures in **lumber drying**, by describing and performing these correctly

Associated assessment criteria

- The learner's description of the procedures involved in carrying out the activities in the workplace and applying the health and safety and environmental protection measures, proves that he/she has achieved the knowledge and understanding of these as required at NQF Level 2 for **lumber drying**
- The procedures prescribed for the relevant tasks regarding the work activity, safety and health and environmental protection measures, are applied correctly
- The learner's contribution in the performance of these activities ensures the successful execution of the relevant tasks
- The learner co-operates successfully as a working team leader
- Instructions are executed as prescribed

Outcome 3

- Interpret, explain verbally or in writing, and comply with the prescribed aspects of legislation for NQF Level 2, that impacts on his/her work situation, relating to the OSH Act, the Labour Relations Act, the Skills Development Act, the Employment Equity Act, and the Basic Conditions of Employment Act

Associated assessment criteria

- The learner's explanation of the prescribed aspects of the relevant legislation proves that he/she has the required level of knowledge and understanding of these aspects
- The prescribed aspects of the relevant legislation are interpreted and explained correctly
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct legal terminology is used in the explanation
- The learner in his/her work situation correctly complies where relevant, with the prescribed aspects of the relevant legislation

Outcome 4

- Demonstrate the level of knowledge and understanding required at NQF level 2, by explaining correctly and clearly the relevant aspects of running a business (Business Principles)

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation

Outcome 5

- Demonstrate the level of knowledge and understanding required at this level, of what a computer is, and how to perform basic word processing, by explaining correctly the technology involved and correctly operating a basic word processing programme.

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The basic word processing programme is operated with the prescribed level of skill

Outcome 6

- Demonstrate the level of knowledge and understanding required at this level of quality control and assurance in the **lumber drying** area, by correctly explaining the procedures and applying these with the prescribed level of skill.

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level

- The correct terminology is used in the explanation
- The procedures for quality control and assurance in **lumber drying** are performed in a manner which ensures the achievement of the prescribed outcomes.

Outcome 7

- Demonstrate the level of knowledge and understanding required at this level, of the relevant details of the material being processed, by correctly describing the parts of a tree and its stem on a cross-section.

Associated assessment criteria

- The required level of knowledge and understanding of wood as a raw material, is proven by the correct verbal or written explanation
- The correct details regarding the parts of a tree and its stem on a cross-section are described
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct wood technological terminology is used in the explanation

Every one of these exit level outcomes will be developed further in the learning programme for NQF Level 3 Lumber Milling: **Lumber Drying**, in order to comply with the knowledge and skills levels required at that level.

The successful achievement of all of the above exit level outcomes, is therefore a requirement for those learners who wish to continue their learning in this field at NQF Level 3.

Any learner who does not want to complete this qualification, can exit the learning programme after achieving outcomes 1 and 2, in order to accumulate credits for example for further learning in related learning pathways in lumber milling, or for other fields related to Wood Technology.

INTERNATIONAL COMPARABILITY

Information gained from visits to and from

- The British Columbia Institute for Technology, Vancouver Canada
- The community college at Ashville in North Caroline, U.S.A
- The Forestry Training Centre at Rotorua, New Zealand
- The Technical and Further Education (TAFE) training institute in Mt Gambier Australia

influenced the thinking on this and other Wood Technology qualifications.

Qualifications from those institutions and these are not exactly the same but learning programmes and hours of learning are comparable. The inclusion of labour legislation and other non-industry specific subjects make it even more uniquely South African.

The institutions listed above are all internationally recognized as centres of excellence in training and education in the Forestry/Wood Technology field.

INTEGRATED ASSESSMENT

The unit standards on which this qualification is based, describe the competent performance in **Lumber Drying**, and lay down the criteria by which competence should be judged, as well as the range of circumstances in which competence should be demonstrated

For each unit standard there are corresponding performance assessment criteria, which describe the evidence an assessor should use to determine a learner's competence.

Integrated assessment methods and tools for this qualification must allow the learner to demonstrate that he/she has acquired the prescribed knowledge of and can safely and efficiently apply the required competence in the relevant aspects of **Lumber Drying**, as described in paragraph 6 Purpose of this qualification, and paragraph 8, Exit-level outcomes

These tools are written or oral tests to determine level of knowledge and on-the-job observation to determine applied competence, as summative assessment, for all the exit level outcomes at the completion of the learning programme.

The tools that can be used for formative assessment during and at the completion of the learning programme for each of the exit level outcomes, are oral testing, on the-job-observation, role-play situations and structured classroom discussions. The assessor/s can decide which method will be the most appropriate in the particular situation where the assessment is taking place

A portfolio of evidence of the outcomes of all these assessments for each learner must be built up for record purposes.

This portfolio may also include, inter alia

- Written statements from e.g. current or previous employer, colleagues, peers, managers, i.e. persons who can supply relevant references
- Relevant awards or certificates
- Previous assessment records
- Journals/logbook, records of work performance

The currently unemployed who followed a learning programme to achieve this qualification, as well as persons seeking recognition of prior learning, can be assessed in the same way

RECOGNITION OF PRIOR LEARNING

This qualification may be achieved in part or in whole by recognition of prior learning. The candidate in this case must be evaluated/assessed in the same manner as described in paragraph 10 above

ARTICULATION POSSIBILITIES

The choice of elective learning components allows the learner to change to another pathway in lumber milling at the same level, or at the next higher level.

The fundamental and non-industry specific core learning components will equip the learner with credits which will be useful in other fields of learning that the learner might wish to change to at any future stage.

MODERATION OPTIONS

All providers offering the learning to achieve this qualification must be registered with the ETQA division of FIETA.

All assessor/s must be registered with the ETQA division of FIETA, and must comply with the requirement for assessors as prescribed by this SETA. In addition, the assessor/s must at least have knowledge and skills levels in this field equivalent to those required by the NQF at Level 4, plus two years of practice in this field as a worker or expert consultant or provider. All moderators moderating the assessment of learners for this qualification must be registered with the ETQA Division of FIETA.

NOTES

The Unit Standards for the "Fundamental" and those marked with asterisks in the "Core" component of learning in the qualification matrix will have to be drawn from other organising fields, or will have to be developed.

QUALIFICATION MATRIX FOR: National Certificate In Lumber Drying NQF Level 2

LEVEL 2	FUNDAMENTAL	CREDIT	CORE	CREDIT	ELECTIVE	CREDIT
	Literacy and communication skills	20	Demonstrate basic knowledge of kiln types etc	3	Demonstrate understanding of relevant aspects of Lumber Milling maths	16
	Mathematical literacy	16	Lead stacking team	3	Demonstrate understanding of details of lumber grading	20
			Follow procedures to assist in sample preparation	10	Demonstrate understanding of details of dry lumber conversion	20
			Follow procedures to assist to prepare load for drying	5	Follow procedures to assist to set up and operate FJ & Lam	20
			Demonstrate understanding of basic principles of kiln schedule	15	Follow procedures to assist to set up log-yard facilities	10
			Demonstrate basic knowledge of drying defects	5	Follow procedures to assist to set up wet mill facilities	15
			Lead team in load movement	2		
			Perform basic maintenance and lubrication	10		
			Demonstrate understanding of different parts of tree and its stem on cross-section	5		
			* Demonstrate understanding of relevant aspects of Labour Relations Act	1		
			* Demonstrate understanding of relevant aspects of Employment Equity Act	1		
			* Demonstrate understanding of relevant aspects of Skills Development Act	1		
			* Demonstrate understanding of relevant aspects of Basic Conditions of Employment Act	1		
			* Demonstrate understanding of relevant aspects of computer literacy	1		
			* Demonstrate understanding of relevant aspects of business principles	1		

			* Demonstrate understanding of relevant principles of environmental management	1		
			* Demonstrate understanding of relevant aspects of quality management	1		
TOTAL		36		66	At least	20
TOTAL	LEVEL 2	122				

LUMBER DRYING NQF LEVEL 2**UNIT STANDARD TITLES AT NQF LEVEL 2**

Industry specific and unit standards available:

- Title 1. Demonstrate basic knowledge of kiln types, construction materials for kilns and auxiliary equipment
 - Title 2. Lead stacking team in stacking lumber drying
 - Title 3. Follow procedures to assist in selection, preparation, placement and use of samples in lumber drying process
 - Title 4. Follow procedures to assist to prepare and load lumber drying kiln
 - Title 5. Demonstrate an understanding of basic principles of lumber kiln drying schedule
 - Title 6. Demonstrate basic knowledge of drying defects that can occur in wood, and methods and techniques to minimize them.
 - Title 7. Lead team to move kiln trolley with load of dried lumber from drying kiln at end of kiln run, to cooling shed/facilities
 - Title 8. Perform basic maintenance and lubrication in lumber drying area in lumber mill.
 - Title 9. Demonstrate understanding of different parts of tree and its stem on cross-section.
- Any one or more of the following:
- Title 10. Demonstrate understanding of details of lumber grading
 - Title 11. Demonstrate understanding of details of dry lumber conversion
 - Title 12. Follow procedures to assist to set up and operate FJ & Lam
 - Title 13. Follow procedures to assist to set up log-yard facilities
 - Title 14. Follow procedures to assist to set up wet mill facilities

Unit standards for the following non industry specific learning components were not available at the time of the development of this qualification and will have to be sourced from the relevant organizing fields/NSB's.

- Title 15. Demonstrate understanding of the aspects of the Occupational Health and Safety Act regarding listed work, health and safety reps and committees
- Title 16. Demonstrate understanding of the aspects of the Labour Relations Act regarding general protection and organisational rights, bargaining institutions, resolving disputes, disciplinary and grievance procedures, right to strike and right to lock out
- Title 17. Demonstrate understanding of the relevant aspects of the Employment Equity Act regarding its interpretation and application and prohibition of unfair discrimination
- Title 18. Demonstrate understanding of the relevant aspects of the Skills Development Act regarding workplace skills plan, its purpose, compilation and execution.
- Title 19. Demonstrate understanding of the relevant aspects of the Basic Conditions of Employment Act regarding principles of the Act, working time, leave and remuneration.
- Title 20. Demonstrate understanding of the relevant aspects of Business Principles regarding shareholding, profits and losses
- Title 21. Demonstrate understanding of the relevant aspects of Computer Literacy regarding what is a computer and basic word processing.
- Title 22. Demonstrate understanding of the relevant aspects of Environmental Management regarding operational principles and employees' responsibilities.
- Title 23. Demonstrate understanding of the relevant aspects of Quality Assurance regarding principles of quality sampling procedures and basic principles of material and product specifications.
- Title 24. Demonstrate understanding of relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) (c) regarding concept of volume and area measurement, use of measuring tools and instruments, methods of measuring (mensuration), and concept of shapes.

UNIT STANDARDS TITLES AND SPECIFIC OUTCOMES AT LNQF LEVEL 2

1. Title: Demonstrate basic knowledge of kiln types, construction materials for kilns and auxiliary equipment.

Specific Outcome 1.1: Identify and describe basic kiln types.

Specific Outcome 1.2: List the structural materials that can be used for kiln construction

Specific Outcome 1.3: Explain the standard methods of loading a lumber drying kiln.

Specific Outcome 1.4: Describe the auxiliary equipment necessary for operating a lumber drying kiln.

2. Title: Lead stacking team in stacking lumber drying.

Specific Outcome 2.1: Sort planks from the green chain into the appropriate dimension classes.

Specific Outcome 2.2: Prepare stacking bay/mechanical stacking for the stacking process.

Specific Outcome 2.3: Prepare kiln trolley to receive planks/parcels of planks/stack.

Specific Outcome 2.4: Stack planks/boards for lumber drying as prescribed.

Specific Outcome 2.5: Place stickers to give appropriate support to each layer of planks

Specific Outcome 2.6: Apply restraining devices to kiln load to minimize distortion of planks

3. Title: Follow procedures to assist in selection, preparation, placement and use of samples in lumber drying process

Specific Outcomes 3.1: Follow procedures to assist to collect kiln drying samples which will be representative in number and appearance to the total number of planks in a kiln stack

Specific Outcome 3.2: Prepare these samples for placement in the kiln stack to be dried

Specific Outcome 3.3: Follow procedures to assist to place these samples in the correct positions in the stack, and connect to moisture content monitors whererelevant

Specific Outcome 3.4: Follow procedures to assist to determine moisture content accurately at the relevant times

Specific Outcome 3.5: Follow procedures to assist to record kiln sample data correctly

4. Title: Follow procedures to assist to prepare and load lumber drying kiln

Specific Outcome 4.1: Follow procedures to assist to prepare the kiln to receive a load of lumber to dry

Specific Outcome 4.2: Position the kiln trolley with load correctly to facilitate loading

Specific Outcome 4.3: Apply load restraining devices, where relevant

Specific Outcome 4.4: Lead team in correctly loading and positioning of trolley with load, attaching measuring instruments whererelevant, closing baffles and shutting kiln door.

5. Title: Demonstrate an understanding of basic principles of lumber kiln drying schedule

Specific Outcome 5.1: Explain the basic factors that must be taken into consideration in a kiln drying schedule

Specific Outcome 5.2: Explain types of kiln drying schedules

Specific Outcome 5.3: Describe the stages of a kiln drying schedule

Specific Outcome 5.4: Explain the process of determining drying rate and end point of drying cycle

6. Title: Demonstrate basic knowledge of drying defects that can occur in wood, and methods and techniques to minimize them.

Specific Outcome 6.1: Describe the properties of wood that can cause drying defects

Specific Outcome 6.2: Describe the lumber drying factors that can cause drying defects

Specific Outcome 6.3: Describe the drying defects that can occur in dried lumber

Specific Outcome 6.4: Describe methods and techniques to minimize lumber kiln drying defects

7. Title: Lead team to move kiln trolley with load of dried lumber from drying kiln at end of kiln run, to cooling shed/facilities

Specific Outcome 7.1: Prepare the lumber drying kiln for removal of the trolley with stack of dried lumber

Specific Outcome 7.2: Move trolley with dried lumber stack from kiln to cooling shed

Specific Outcome 7.3: Park trolley with stack of dried lumber in cooling shed and remove the pulling equipment and the load restraining devices/weights (at the correct time) where relevant.

8. Title: Perform basic maintenance and lubrication in lumber drying area in lumber mill.

Specific Outcome 8.1: Explain the procedures for the basic maintenance and lubrication programme for the facilities in the relevant workplace in the lumber mill

Specific Outcome 8.2: Describe the cleaning equipment, materials and other aids to be used in the process

Specific Outcome 8.3: Describe the storage location and inventory proceedings for the maintenance and lubrication materials and tools

Specific Outcome 8.4: Perform the basic maintenance and lubrication programme as prescribed

9. Title: Demonstrate understanding of different parts of tree and its stem on cross-section.

Specific Outcome 9.1: Identify the main parts of a tree

Specific Outcome 9.2: Identify those main features of wood visible to the naked eye on the cross section of a tree stem

Specific Outcome 9.3: Identify the special growth features of wood that usually affect dried quality of wood

Specific Outcome 9.4: Explain the basic differences between hardwoods and softwoods

10. Title: Demonstrate understanding of specific details of lumber grading

Specific Outcome 10.1: Explain correctly the relevant visual grading rules and specifications for the appearance grade products that the relevant enterprise produces.

Specific Outcome 10.2: Explain correctly the relevant visual grading rules, and specifications for stress (strength) graded product that this enterprise produces.

Specific Outcome 10.3: Explain correctly the relevant mechanical grading rules and specifications for the various stress (strength) grade products that this enterprise produces.

Specific Outcome 10.4: Explain correctly the relevant grading marks for the various grades of products that are produced, and their respective placements on these products.

11. Title: Demonstrate understanding of details of dry lumber conversion

Specific Outcome 11.1: Explain correctly the purpose and process of rip-sawing to recover narrower and/or thinner products from dried lumber.

Specific Outcome 11.2: Explain correctly the purpose and process of cross-cutting to recover shorter products from dried lumber.

Specific Outcome 11.3: Explain correctly the purpose and process of planning lumber.

Specific Outcome 11.4: Explain correctly the purpose and process of moulding lumber.

Specific Outcome 11.5: Explain correctly the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area.

12. Title: Follow procedures to assist to set up and operate FJ & Lam

Specific Outcome 12.1: Explain correctly the purpose and process of recording the material coming into the Finger-Jointing and Laminating processes and directing them to their relevant holding areas.

Specific Outcome 12.2: Explain correctly the purpose and process of the production flow from the first to the last activity in this work area and maintaining a regular flow of material through all these activities / processes.

Specific Outcome 12.3: Explain correctly the purpose and process of the procedures and the setting up of the equipment for production runs.

Specific Outcome 12.4: Explain correctly the purpose and process of the operation of the equipment in this work area.

Specific Outcome 12.5: Explain correctly the purpose and process of the waste disposal facilities in this work area.

Specific Outcome 12.6: Explain correctly the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area

13. Title: Follow procedures to assist to set up log-yard facilities

Specific Outcome 13.1: Follow procedures to assist with offloading logs using the correct techniques onto the log receiving deck/offloading deck.

Specific Outcome 13.2: Follow procedures to assist with sorting logs and storing using the correct tools, equipment and equipment into the correct log classes.

Specific Outcome 13.3: Follow procedures to assist with setting up and operating the debarking facility.

Specific Outcome 13.4: Follow procedures to assist with feeding sorted debarked logs into the Wet Mill in accordance with planned Wet Mill material requirements.

Specific Outcome 13.5: Follow procedures to assist in keeping records of logs received at and processed in the logyard (log tallying).

14. Title: Follow procedures to assist to set up wet mill facilities

Specific Outcome 14.1: Follow procedures to assist in maintaining a regular / constant flow of materials through all the processing phases in the Wet Mill.

Specific Outcome 14.2: Follow procedures to assist in setting up green timber processing equipment for production runs in the Wet Mill.

Specific Outcome 14.3: Follow procedures to assist in operating green timber processing machines/equipment and materials handling equipment in the Wet Mill.

Specific Outcome 14.4: Follow procedures to assist in the removal and disposal of wood waste in the prescribed manner, place and time in the Wet Mill.

No. 264

8 March 2002

NATIONAL CERTIFICATE IN LUMBER DRYING NQF LEVEL 3**Field:** Agriculture and Nature Conservation.**Sub-field:** Forestry and Wood Technology.**Level:** 3**Credit:** 124**RATIONALE FOR THE QUALIFICATION**

NOTE: Lumber Drying in the lumber mill means those activities that start with the activity of pulling green/wet lumber from the green chain, at the end of the wet mill. This lumber is then sorted for dimension, stacked in loads for drying, and then moved/transported to the drying facilities. This can be the air-dry yard or the lumber drying kilns. The drying process then follows after which the load of dried lumber is removed from the drying facility to the next stage of the lumber milling process.

- The typical range of learners is the currently employed, unemployed and other persons, who want to enter a learning programme to obtain a National Certificate in Wood Technology: Lumber Milling (Lumber Drying) at NQF Level 3, to continue building a career path in this industry.
- These learners, once qualified, will be able to effectively and efficiently work as operators and leaders of work teams, on tasks they are responsible for at this level in the relevant workplace in the lumber drying area.
- South African lumber millers are facing an increasing demand for better quality products at more competitive prices. This is leading to an increased demand for more knowledgeable and better skilled personnel to produce such products. Historically this industry experienced various forms of protection. Lumber mill personnel at the lower levels were only exposed to unplanned, periodic, ad-hoc learning programmes, which did not establish an appropriately trained workforce. All protection has now been removed. This industry is now part of the global market, and it must be competitive in price and quality to survive. It can only achieve this through improved knowledge and skills levels. The new education and training dispensation can deliver this. Therefore a demand, which will increase in the future.
- This qualification equips learners with identified competencies in knowledge and skills at NQF Level 3 and it provides a basis for further learning at NQF level 4. The exit level outcomes, which embody these competencies in knowledge and skills are listed in paragraph 8 below. The fundamental outcomes as well as the non-industry specific core outcomes required at this level, also provide the learner with building blocks for a learning pathway outside this industry. The choice of electives allows the learner the option of continuing his/her learning in any of four other areas in the lumber milling field.
- The learning programme, which leads to this qualification, produces a person who is knowledgeable about and appropriately skilled in performing the relevant tasks in the **lumber drying** area. Persons without any training or with another type of training, or persons who had undergone the ad-hoc type of training which was prevalent under the previous dispensation, will not be of the same quality for this work than a learner with this qualification.
- Improved levels of knowledge and skills lead to greater ability to produce at more competitive costs and better quality, increased sales, greater profits, more personal income, which will impact favourably both on the society and the economy of the country.

PURPOSE OF QUALIFICATION

A learner acquiring this qualification will be able to perform the functions/duties/responsibilities of the person responsible for the production tasks in lumber drying, demonstrating the knowledge and skills competencies levels prescribed in the unit standards for NQF Level 3 in this field.

He/she will be able to perform the relevant tasks in this workplace to the prescribed standards, while correctly following the prescribed work procedures, and the health and safety and environmental protection measures applicable to the lumber drying area.

The learner will be able to interpret and comply with the prescribed aspects of the relevant legislation impacting on his/her work situation.

He/she will be able to explain the aspects of Business Principles, Computer Literacy and Quality Assurance that are prescribed for this level in lumber drying, and use the skills these offer him/her where relevant.

This learner will be able to describe the structure of wood and how this relates to its appearance, strength and water holding properties.

This qualification provides the qualifying learner with legal proof of having achieved the prescribed levels of knowledge and practical competence, where up till the present time, this only existed for tertiary educated persons.

The learning programme that leads to this qualification improves the operating ability and therefore the earning ability of the qualifier, which must contribute to the social and economic development of the country.

This qualification qualifies a person who has successfully demonstrated his/her knowledge levels and competence in the skills prescribed for Wood Technology: Lumber Milling (Lumber Drying) for NQF Level 3, to enroll for an NQF Level 4 Learnership and Qualification in this domain. It ensures another step on a structured career path for the learner. This Qualification forms part of the Learnership in Wood Technology: Lumber Milling (Lumber Drying) (NQF Level 3), which, together with three other qualifications at this level, constitute the third tier or level of the NQF framework for the Lumber Milling Industry.

It facilitates access to and mobility within learning pathways in Lumber Milling and other Wood Technology learning pathways. This qualification supports the National Qualifications Framework regarding access, mobility and progression, quality of learning, redress of unfair discrimination and contribution to personal development and social and economic development of the nation

ACCESS TO QUALIFICATION

There is open access to this qualification. This Qualification is achievable by any person who can demonstrate the knowledge and skills levels, required by the fundamental, core and elective unit standards on which this qualifications is based. Prospective learners do however have to note that certain tasks will be physically demanding.

LEARNING ASSUMED TO BE IN PLACE

It will be assumed that a learner who registers for this qualification, will have successfully mastered the following outcomes:

(Fundamental learning)

- Communicate orally and in writing to standards equivalent to NQF Level 2 requirements.
- exhibit mathematical skills equivalent to NQF Level 2 requirements.

(Core learning)

- Demonstrate understanding of the different parts of a tree and its stem on cross-section.
- Demonstrate basic knowledge of kiln types, construction materials and auxiliary equipment.
- lead stacking team in stacking lumber for drying.
- Follow procedures to assist in selection, preparation and placement of samples in lumber drying.
- Follow procedures to assist to prepare and load dry kiln.
- Demonstrate an understanding of the basic principles of kiln drying schedule.
- Lead team to move loaded trolleys of dried lumber.
- Perform basic maintenance and lubrication in this workplace.

- Perform these tasks according to the work procedures of the enterprise, and subject to the relevant safety and health prescriptions and the applicable environmental management principles.
- Demonstrate understanding of the aspects of the Occupational Health and Safety Act regarding listed work, health and safety reps and committees.
- Demonstrate understanding of the aspects of the Labour Relations Act regarding general protection and organisational rights, bargaining institutions, resolving disputes, disciplinary and grievance procedures, right to strike and right to lock out.
- Demonstrate understanding of the relevant aspects of the Employment Equity Act regarding its interpretation and application and prohibition of unfair discrimination.
- Demonstrate understanding of the relevant aspects of the Skills Development Act regarding workplace skills plan, its purpose, compilation and execution.
- Demonstrate understanding of the relevant aspects of the Basic Conditions of Employment Act regarding principles of the Act, working time, leave and remuneration.
- Demonstrate understanding of the relevant aspects of Business Principles regarding shareholding, profits and losses.
- Demonstrate understanding of the relevant aspects of Computer Literacy regarding what is a computer and basic word processing.
- Demonstrate understanding of the relevant aspects of Environmental Management regarding operational principles and employees' responsibilities.
- Demonstrate understanding of the relevant aspects of Quality Assurance regarding principles of quality sampling procedures and basic principles of material and product specifications.

(Elective Learning)

- Demonstrate understanding of the specific details of setting up certain processing equipment in the wet mill are and/or of the lumber grading process, and/or of dry mill conversion process, and/or assisting to set up and operate finger jointing and laminating facilities.
- Demonstrate understanding of relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) (c) regarding concept of volume and area measurement, use of measuring tools and instruments, methods of measuring (mensuration), and concept of shapes.

(Cross-field Outcomes).

- Evaluate status of reported problems, report orally or in writing to relevant person/s, lead work team in workplace, assist to carry out production programme, collating and analysing data, communicate effectively with all relevant persons and oversee the care and storage of tools and instruments used in the workplace.

EXIT LEVEL OUTCOMES

The qualifying learner can:

Outcome 1

- describe and perform the functions/duties/responsibilities required of the person responsible for the production tasks in **lumber drying**, demonstrating the knowledge and skills competencies levels prescribed in the unit standards for NQF Level 3 in this field.

Associated assessment criteria

- The learner's description demonstrates a knowledge and understanding of the functions/duties/responsibilities required of the person responsible for the production tasks in **lumber drying**, which complies with the requirements prescribed for NQF Level 3
- The relevant tasks are performed as prescribed
- The learner communicates effectively with the responsible person/s and other workers in his/her work situation and gives the necessary guidance required of his position in the prescribed manner
- The learner gives the prescribed quality of leadership to the work team he/she must lead in his/her work situation
- This learner's contribution to the relevant production activity assures that the required delivery/production rate is maintained
- Reported problems in the relevant production activities or workplace are solved and the necessary decisions made in the prescribed manner

- Workers in the learner's area of authority in the **lumber drying area** are motivated, guided and trained in the relevant production activities in the prescribed manner

Outcome 2

- Demonstrate the level of knowledge and understanding required at NQF level 3, of the prescribed work procedures, the safety and health and environmental protection measures in **lumber drying**, by describing and performing these correctly

Associated assessment criteria

- The learner's description demonstrates a knowledge and understanding of the work procedures, safety and health, and environmental protection measures, which complies with the prescriptions for the NQF Level 3 in **lumber drying**
- The procedures prescribed for the relevant tasks regarding the work activity, safety and health and environmental protection measures, are applied correctly
- The learner's correct guidance and motivation of the workers in the performance of these activities ensures the execution of the relevant tasks as prescribed
- The learner achieves the required co-operation successfully as a leader in his/her area of authority in the **lumber drying area**
- His/her instructions are understood and executed as prescribed

Outcome 3

- Interpret, explain verbally or in writing, and comply with the prescribed aspects of legislation for NQF Level 3, that impacts on his/her work situation, relating to the OSH Act, the Labour Relations Act, the Skills Development Act, the Employment Equity Act, and the Basic Conditions of Employment Act

Associated assessment criteria

- The learner's explanation of the prescribed aspects of the relevant legislation proves that he/she has the level of knowledge and understanding of these aspects as required at NQF Level 3 for **lumber drying**
- The prescribed aspects of the relevant legislation are interpreted and explained correctly
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct legal terminology is used in the explanation
- The learner in his/her work situation correctly complies where relevant, with the prescribed aspects of the relevant legislation

Outcome 4

- Demonstrate the level of knowledge and understanding required at NQF level 3, by explaining correctly and clearly the relevant aspects of running a business (Business Principles)

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation

Outcome 5

- Demonstrate the level of knowledge and understanding required at this level, regarding computer software packages relevant to lumber milling and their use, by explaining correctly the technology involved and correctly applying these programmes

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The relevant software programmes are operated with the prescribed level of skill

Outcome 6

- Demonstrate the level of knowledge and understanding required at NQF level 3, of quality control and assurance in the **lumber drying** area, by correctly explaining the procedures and applying these with the prescribed level of skill.

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The procedures for quality control and assurance in **lumber drying** are performed in a manner which ensures the achievement of the prescribed outcomes

Outcome 7

- Demonstrate the knowledge and understanding required at NQF level 3, of the relevant details of the material being processed, by correctly describing the structure of wood and how this relates to its appearance, strength and water holding properties.

Associated assessment criteria

- The required level of knowledge and understanding of wood as a raw material, is proven by the correct verbal or written explanation of its structure and how this relates to its appearance, strength and water holding properties
- The details regarding the structure of wood and how this relates to the relevant properties, are described correctly
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct wood technological terminology is used in the explanation

Every one of these exit level outcomes, except outcome 4 which relates to Business Principles, will be developed further in the learning programme for NQF Level 4 Lumber Milling: **Lumber Drying**, in order to comply with the knowledge and skills levels required at that level.

The successful achievement of all of the above exit level outcomes, is therefore a requirement for those learners who wish to continue their learning in this field at NQF Level 4.

Any learner who does not want to complete this qualification, can exit the learning programme after achieving outcomes 1 and 2, in order to accumulate credits for example for further learning in related learning pathways in lumber milling, or for other fields related to Wood Technology.

INTERNATIONAL COMPARABILITY

Information gained from visits to and from

- The British Columbia Institute for Technology, Vancouver Canada
 - The community college at Ashville in North Caroline, U.S.A
 - The Forestry Training Centre at Rotorua, New Zealand
 - The Technical and Further Education (TAFE) training institute in Mt Gambier Australia
- influenced the thinking on this and other Wood Technology qualifications.

Qualifications from those institutions and these are not exactly the same but learning programmes and hours of learning are comparable. The inclusion of labour legislation and other non-industry specific subjects make it even more uniquely South African.

The institutions listed above are all internationally recognized as centres of excellence in training and education in the Forestry/Wood Technology field.

INTEGRATED ASSESSMENT

The unit standards on which this qualification is based, describe the competent performance in **Lumber Drying**, and lay down the criteria by which competence should be judged, as well as the range of circumstances in which competence should be demonstrated

For each unit standard there are corresponding performance assessment criteria, which describe the evidence an assessor should use to determine a learner's competence.

Integrated assessment methods and tools for this qualification must allow the learner to demonstrate that he/she has acquired the prescribed knowledge of and can safely and efficiently apply the required competence in the relevant aspects of **Lumber Drying**, as described in paragraph 6 (Purpose of this qualification) and paragraph 8 (Exit-level outcomes).

These tools are written or oral tests to determine level of knowledge and on-the-job observation, to determine applied competence, as summative assessment, for all the exit level outcomes at the completion of the learning programme.

The tools that can be used for formative assessment during and at the completion of the learning programme for each of the exit level outcomes, are oral testing, on the-job-observation, role-play situations and structured classroom discussions. The assessor/s can decide which method will be the most appropriate in the particular situation where the assessment is taking place.

A portfolio of evidence of the outcomes of all these assessments for each learner must be built up for record purposes.

This portfolio may also include, inter alia

- Written statements from e.g. current or previous employer, colleagues, peers, managers, i.e. persons who can supply relevant references
- Relevant awards or certificates
- Previous assessment records
- Journals/logbook, records of work performance

The currently unemployed who followed a learning programme to achieve this qualification, as well as persons seeking recognition of prior learning, can be assessed in the same way

RECOGNITION OF PRIOR LEARNING

This qualification may be achieved in part or in whole by recognition of prior learning. The candidate in this case must be evaluated/assessed in the same manner as described in paragraph 10 above.

ARTICULATION POSSIBILITIES

The choice of elective learning components allows the learner to change to another pathway in lumber milling at the same level, or at the next higher level.

The fundamental and non-industry specific core learning components will equip the learner with credits which will be useful in other fields of learning that the learner might wish to change to at any future stage.

MODERATION OPTIONS

All providers offering the learning to achieve this qualification must be registered with the ETQA division of FIETA.

All assessor/s must be registered with the ETQA division of FIETA, and must comply with the requirement for assessors as prescribed by this SETA. In addition the assessor/s must at least have the knowledge and skills levels in this field equivalent to those required by the NQF at Level 4, plus two years of practice in this field as a worker or expert consultant or provider. All moderators moderating the assessment of learners for this qualification must be registered with the ETQA Division of FIETA.

NOTES

The Unit Standards for the "Fundamental" and those marked with asterisks in the "Core" component of learning in the qualification matrix will have to be drawn from other organising fields, or will have to be developed.

QUALIFICATION MATRIX FOR: National Certificate In Lumber Drying NQF Level 3

CREDIT	FUNDAMENTAL	CREDIT	CORE	CREDIT	ELECTIVE	CREDIT
	Literacy and communication skills	20	Demonstrate understanding of structure of wood and how it relates to its strength, appearance and water holding	15	Demonstrate understanding of relevant aspects of Lumber Milling maths	16
	Mathematical literacy	16	Demonstrate understanding of lumber drying kiln types etc.	5	Set up and operate primary break down Set up and operate secondary breakdown	10 10
			Control kiln drying process	15	Control lumber grading	20
			Dry lumber in kiln applying schedule with all stages	20	Set up and operate conversion equipment in dry mill	30
			Control basic maintenance and lubrication	15	Produce FJ & Laminated lumber	20
			* Demonstrate understanding of relevant aspects of Labour Relations Act	1		
			* Demonstrate understanding of relevant aspects of Employment Equity Act	1		
			* Demonstrate understanding of relevant aspects of Skills Development Act	1		
			* Demonstrate understanding of relevant aspects of Basic Conditions of Employment Act	1		
			* Demonstrate understanding of relevant aspects of computer literacy	1		
			* Demonstrate understanding of relevant aspects of business principles	1		
			* Demonstrate understanding of relevant principles of environmental management	1		
			* Demonstrate understanding of relevant aspects of quality management	1		
TOTAL		36		78	at least	10
TOTAL	LEVEL 3	124				

LUMBER DRYING NQF LEVEL 3**UNIT STANDARD TITLES AT NQF LEVEL 3**

Industry specific and unit standards available:

- Title 1. Demonstrate understanding of properties of wood related to drying.
- Title 2. Demonstrate understanding of lumber drying kiln types, their construction materials and auxiliary equipment.
- Title 3. Control lumber drying process in lumber mill.
- Title 4. Dry lumber in lumber drying kiln applying schedule with all possible stages.
- Title 5. Control basic maintenance and lubrication in lumber drying area in lumber mill.
- Title 6. Demonstrate understanding of structure of wood and how it relates to its appearance, strength and how it holds water.

Any one or more of the following:

- Title 7. Set up and operate primary break down.
- Title 8. Set up and operate secondary breakdown.
- Title 9. Control lumber grading.
- Title 10. Set up and operate conversion equipment in dry mill.
- Title 11. Produce Finger jointing lumber.
- Title 12. Produce laminated lumber.

Unit standards for the following non- industry specific learning components were not available at the time of the development of this qualification and will have to be sourced from the relevant organizing fields/NSB's.

- Title 13. Demonstrate understanding of the relevant aspects of the OSH Act regarding employer and employees' responsibilities.
- Title 14. Demonstrate understanding of the relevant aspects of the LRA regarding CCMA procedures, unfair dismissal and unfair labour practice.
- Title 15. Demonstrate understanding of the relevant aspects of the EEA regarding affirmative action procedures, monitoring, enforcement and legal procedure.
- Title 16. Demonstrate understanding of the relevant aspects of the SDA regarding learnerships, learner rights, employer rights, provider rights, contracts.
- Title 17. Demonstrate understanding of the relevant aspects of the BCEA regarding employment contract, employment criteria, termination of employment.
- Title 18. Demonstrate understanding of the relevant aspects of Business Principles regarding financial management basics, budgeting principles.
- Title 19. Demonstrate understanding of the relevant aspects of Computer Literacy regarding software packages and their use.
- Title 20. Demonstrate understanding of the relevant aspects of Environmental Management principles
- Title 21. Demonstrate understanding of the relevant aspects of Quality Assurance regarding quality systems, SABS specifications, ISO 9000 principles.
- Title 22. Demonstrate understanding of relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) (c) regarding calculations of speed/time, weight/density, fractions and percentages, linear graphs and moving averages.

UNIT STANDARDS TITLES AND SPECIFIC OUTCOMES AT LNQF LEVEL 3**1. Title: Demonstrate understanding of properties of wood related to drying.**

Specific Outcome 1.1: Describe the fine (microscopic) structure of wood.

Specific Outcome 1.2: Explain how wood holds water.

Specific Outcome 1.3: Explain why and how wood shrinks and swells ("moves").

Specific Outcome 1.4: Describe the influence of all the above factors on the distortion of wood.

2. Title: Demonstrate understanding of lumber drying kiln types, their construction and auxiliary equipment.

Specific Outcome 2.1: Describe the basic kiln types commonly in use, and how they function.

Specific Outcome 2.2: Describe the construction materials used to build kilns for lumber drying, and their respective advantages and disadvantages.

Specific Outcome 2.3: Explain the standard methods that could be used to load kilns.

Specific Outcome 2.4: Describe the auxiliary equipment necessary, and its functioning, for air circulation, heat supply, humidification and kiln controls.

3. Title: Control lumber drying process in lumber mill

Specific Outcome 3.1: Schedule the appropriate lumber to be accessed for the drying process, dried and delivered to the next stage of production in the lumber mill.

Specific Outcome 3.2: Ensure the availability of the required equipment for and the correctness of the stacking process, to prevent or minimize distortion during drying.

Specific Outcome 3.3: Use samples to control and monitor the drying process.

Specific Outcome 3.4: Ensure an appropriate and sustained steam supply to the lumber drying kilns.

Specific Outcome 3.5: Control preparation, loading and unloading of lumber drying kilns.

Specific Outcome 3.6: Apply effective measures to prevent or minimize drying defects in lumber.

4. Title: Dry lumber in lumber drying kiln applying schedule with all possible stages.

Specific Outcome 4.1: Heat up the kiln till the lumber has attained the prescribed temperature.

Specific Outcome 4.2: Run the relevant drying cycle with all its stages.

Specific Outcome 4.3: Determine endpoint and terminate drying cycle.

Specific Outcome 4.4: Apply treatment to equalize moisture contents of planks in load at the end of the drying cycle.

Specific Outcome 4.5: Apply a conditioning treatment, after the equalizing treatment (where relevant) to release drying stresses in the lumber.

Specific Outcome 4.6: Keep the appropriate records of the drying process.

5. Title: Control basic maintenance and lubrication in lumber drying area in lumber mill.

Specific Outcome 5.1: Demonstrate an understanding of the purpose of, and how to control, the basic maintenance and lubrication programme for the relevant workplace.

Specific Outcome 5.2: Demonstrate an understanding of the functions, the purpose and the methods of application of the basic maintenance and lubrication equipment and materials.

Specific Outcome 5.3: Control the storage facilities and keeping inventory of the basic maintenance and lubrication equipment and materials.

Specific Outcome 5.4: Oversee the basic maintenance and lubrication of the equipment in the relevant workplace.

6. Title: Demonstrate understanding of structure of wood and how it relates to its appearance, strength and how it holds water.

Specific Outcome 6.1: Describe the fine (microscopic) structure of wood, i.e. the "units".

Specific Outcome 6.2: Describe how this relates to the weight (density) and strength of wood.

Specific Outcome 6.3: Explain the influence these units have on the appearance of wood.

Specific Outcome 6.4: Explain how wood holds water.

Specific Outcome 6.5: Explain why and how wood shrinks and swells ("moves").

7. Title: Set up and operate primary break down

Specific Outcome 7.1: Collect all the prescribed setting up tools and equipment and log cutting tools (blades, knives) for the individual primary log breakdown and ancillary materials handling equipment.

Specific Outcome 7.2: Set up the primary log breakdown facilities equipment and install the required cutting tools, to prescribed standards, in the prescribed manner.

Specific Outcome 7.3: Operate primary log breakdown equipment in the prescribed manner to convert round logs into wet sawn lumber of prescribed dimensions and standards.

Specific Outcome 7.4: Control the throughput and quality to maintain prescribed standards.

Specific Outcome 7.5: Carry out prescribed routine maintenance and lubrication of log breakdown and ancillary handling equipment.

8. Title: Set up and operate secondary breakdown.

Specific Outcome 8.1: Collect all the prescribed setting up tools and equipment and green lumber cutting tools (blades, knives) for the individual secondary log breakdown and ancillary materials handling equipment.

Specific Outcome 8.2: Set up the secondary log breakdown facilities equipment and install the required cutting tools, to prescribed standards, in the prescribed manner.

Specific Outcome 8.3: Operate secondary log breakdown equipment in the prescribed manner to convert cants etc. into green lumber of prescribed thickness.

Specific Outcome 8.4: Control the throughput and quality to maintain prescribed standards.

Specific Outcome 8.5: Carry out prescribed routine maintenance and lubrication of secondary log breakdown and ancillary handling equipment.

9. Title: Control lumber grading.

Specific Outcome 9.1: Check that relevant lumber grading facility is correctly prepared.

Specific Outcome 9.2: Check that the products to be graded have been correctly identified, collected and presented at the grading facility.

Specific Outcome 9.3: Control the actual grading process.

Specific Outcome 9.4: Oversee the correct sorting and assembling into parcels of graded lumber with similar dimensions and graders' markings.

Specific Outcome 9.5: Oversee the correct stacking, stamping/marketing and strapping of graded and marked products into prescribed size parcels for dispatch.

10. Title: Set up and operate conversion equipment in dry mill.

Specific Outcome 10.1: Access and assemble the necessary tools, instruments, equipment and cutting tools required for setting up this conversion equipment.

Specific Outcome 10.2: Install and set up conversion tools / cutting blades / knives to produce thinner and narrower products.

Specific Outcome 10.3: Operate conversion equipment to convert dried lumber into thinner and narrower length products.

Specific Outcome 10.4: Monitor quality of product produced.

Specific Outcome 10.5: Explain correctly the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area.

11. Title: Produce Finger-jointing lumber.

Specific Outcome 11.1: Explain correctly the purpose and process of setting up Finger Joint Cutter machine.

Specific Outcome 11.2: Explain correctly purpose and process of establishing Finger Joints with the correct profile dimensions.

Specific Outcome 11.3: Explain correctly the purpose and process of sorting only approved lumber to accepted specification.

Specific Outcome 11.4: Explain correctly that the purpose and process of stacking and distributing graded FJ lumber to the correct destination.

Specific Outcome 11.5: Explain correctly the purpose and process of cross cutting, stacking and curing of Finger Jointed lumber.

Specific Outcome 11.6: Explain correctly the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area.

12. Title: Produce laminated lumber.

Specific Outcome 12.1: Explain correctly the purpose and process of applying glue to laminates.

Specific Outcome 12.2: Explain correctly the purpose and process of laminate assembly in the press.

Specific Outcome 12.3: Explain correctly the purpose and process of applying pressure and using a torque wrench.

Specific Outcome 12.4: Explain correctly the purpose and process of applying heat for correct curing.

Specific Outcome 12.5: Explain correctly the purpose and process of releasing pressure and removal of baulks from the press.

Specific Outcome 12.6: Explain correctly the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area.

No. 265

8 March 2002

NATIONAL CERTIFICATE IN LUMBER DRYING NQF LEVEL 4**Field:** Agriculture and Nature Conservation.**Sub-field:** Forestry and Wood Technology.**Level:** 4**Credit:** 121**RATIONALE FOR THE QUALIFICATION**

NOTE: Lumber Drying in the lumber mill means those activities that start with the activity of pulling green/wet lumber from the green chain, at the end of the wet mill. This lumber is then sorted for dimension, stacked in loads for drying, and then moved/transported to the drying facilities. This can be the air-dry yard or the lumber drying kilns. The drying process then follows after which the load of dried lumber is removed from the drying facility to the next stage of the lumber milling process.

- The typical range of learners is the currently employed, unemployed and other persons, who want to enter a learning programme to obtain a National Certificate in Wood Technology: Lumber Milling (Lumber Drying) at NQF Level 4, to continue building a career path in this industry.
- These learners, once qualified, will be able to effectively and efficiently work as supervisors or foremen, on tasks they are responsible for at this level in the relevant workplace in the green timber processing area.
- South African lumber millers are facing an increasing demand for better quality products at more competitive prices. This is leading to an increased demand for more knowledgeable and better skilled personnel to produce such products. Historically this industry experienced various forms of protection. Lumber mill personnel at the lower levels were only exposed to unplanned, periodic, ad-hoc learning programmes, which did not establish an appropriately trained workforce. All protection has now been removed. This industry is now part of the global market, and it must be competitive in price and quality to survive. It can only achieve this through improved knowledge and skills levels. The new education and training dispensation can deliver this. Therefore a demand, which will increase in the future.
- This qualification equips learners with identified competencies in knowledge and skills at NQF Level 4 and it provides a basis for further learning at NQF Level 5. The exit level outcomes, which embody these competencies in knowledge and skills are listed in paragraph 8 below. The fundamental outcomes as well as the non-industry specific core outcomes required at this level, also provide the learner with building blocks for a learning pathway outside this industry. The choice of electives allows the learner the option of continuing his/her learning in any of three other areas in the lumber milling field.
- The learning programme, which leads to this qualification, produces a person who is knowledgeable about and appropriately skilled in performing the relevant tasks in the lumber drying area. Persons without any training or with another type of training, or persons who had undergone the ad-hoc type of training which was prevalent under the previous dispensation, will not be of the same quality for this work than a learner with this qualification
- Improved levels of knowledge and skills lead to greater ability to produce at more competitive costs and better quality, increased sales, greater profits, more personal income, which will impact favourably both on the society and the economy of the country.

PURPOSE OF QUALIFICATION

A learner acquiring this qualification will be able to carry out his/her prescribed responsibilities in a knowledgeable and skillful manner as a supervisor/manager of all the activities that take place in the **lumber drying area** in a lumber mill as prescribed in the unit standards for NQF Level 4 in this field.

He/she will be able to perform the relevant tasks in this workplace to the prescribed standards, while correctly following the prescribed work procedures, and the health and safety and environmental protection measures applicable to the **lumber drying area** for NQF Level 4.

The learner will be able to interpret and comply with the prescribed aspects of the relevant legislation impacting on his/her work situation at this level.

He/she will be able to explain the aspects of Computer Literacy and Quality Assurance that are prescribed for this level in **lumber drying**, and use the skills these offer him/her correctly where relevant.

This learner will be able to describe the influence of the structure of wood, its properties and certain production factors on its final quality.

This qualification provides the qualifying learner with legal proof of having achieved the prescribed levels of knowledge and practical competence, where up till the present time, this only existed for tertiary educated persons.

The learning programme that leads to this qualification improves the operating ability and therefore the earning ability of the qualifier, which must contribute to the social and economic development of the country.

This qualification qualifies a person who has successfully demonstrated his/her knowledge levels and competence in the skills prescribed for Wood Technology: Lumber Milling (**Lumber Drying**) for NQF Level 4, to enroll for an NQF Level 5 Learnership and Qualification in this domain. It ensures a higher step on a structured career path for the learner. This Qualification forms part of the Learnership in Wood Technology: Lumber Milling (**Lumber Drying**) (NQF Level 4), which, together with three other qualifications at this level, constitute the fourth tier or level of the NQF framework for the Lumber Milling Industry.

It facilitates access to and mobility within learning pathways in Lumber Milling and other Wood Technology learning pathways.

This qualification supports the National Qualifications Framework regarding access, mobility and progression, quality of learning, redress of unfair discrimination and contribution to personal development and social and economic development of the nation

ACCESS TO QUALIFICATION

There is open access to this qualification. This Qualification is achievable by any person who can demonstrate the knowledge and skills levels, required by the fundamental, core and elective unit standards on which this qualifications is based. Prospective learners do however have to note that certain tasks will be physically demanding.

LEARNING ASSUMED TO BE IN PLACE

It will be assumed that a learner who registers for this qualification, will have successfully mastered the following outcomes:

(Fundamental learning)

- Communicate orally and in writing to standards equivalent to NQF Level 3 requirements.
- Exhibit mathematical skills equivalent to NQF Level 3 requirements.

(Core learning)

- Demonstrate understanding of the structure of wood and how it relates to its appearance, strength and how it holds water.
- Demonstrate a detailed knowledge and understanding of lumber drying kiln types, their construction materials and auxiliary equipment.
- Control lumber drying process in lumber mill.
- Dry lumber in lumber drying kiln applying a schedule with all possible stages.
- Control basic maintenance and lubrication in this workplace.
- Perform these tasks according to the work procedures of the enterprise, and subject to the relevant safety and health prescriptions and the applicable environmental management principles.
- Demonstrate understanding of the relevant aspects of the Occupational Health and Safety Act.
- Demonstrate understanding of the relevant aspects of the Labour Relations Act regarding Committee for Conciliation Mediation and Arbitration procedures, unfair dismissal and unfair labour practice.
- Demonstrate understanding of the relevant aspects of the Employment Equity Act regarding affirmative action procedures, monitoring, enforcement and legal procedure.
- Demonstrate understanding of the relevant aspects of the Skills Development Act regarding learnerships, learner rights, employer rights, provider rights, contracts.
- Demonstrate understanding of the relevant aspects of the Basic Conditions of Employment Act regarding employment contract, employment criteria, termination of employment.
- Demonstrate understanding of the relevant aspects of Business Principles regarding financial management basics, budgeting principles.
- Demonstrate understanding of the relevant aspects of Computer Literacy regarding software packages and their use.
- Demonstrate understanding of the relevant aspects of Environmental Management principles.
- Demonstrate understanding of the relevant aspects of Quality Assurance regarding quality systems, SABS specifications, ISO 9000 principles.

(Elective Learning)

- Demonstrate understanding of the relevant details of setting up and operating certain wet mill production facilities, and/or of controlling lumber grading, and/or setting up and operating dry mill conversion facilities, and/or producing finger jointed and laminated lumber.
- Demonstrate understanding of relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) (c) regarding calculations of speed/time, weight/density, fractions and percentages, linear graphs and moving averages.

(Cross-field Outcomes)

- Solve problems and make decisions regarding the activities in the relevant workplace; lead the other workers in this workplace; carry out the production programme; collate and analyze data and report results to relevant person/s; assist in training learners in this workplace; assume full responsibility for all equipment, tools and instruments used in this workplace.

EXIT LEVEL OUTCOMES

The qualifying learner can:

Outcome 1

- Describe and carry out his/her prescribed responsibilities in a knowledgeable and skillful manner as a manager of all the activities that take place in the **lumber drying area** in a lumber mill, as prescribed in the unit standards for NQF Level 4 in this field.

Associated assessment criteria

- The learner's description demonstrates a knowledge of the management principles applicable to his/her area of authority, which complies with the requirements prescribed for NQF Level 4
- The learner's description is given in a clear and understandable manner

- The learner performs the management of the various aspects that control the operation of the green timber processing area, in the prescribed manner
- The correct interaction of the learner with the people involved in the production activities in his/her area of authority, and his/her decision making and planning ability, ensures that the prescribed production targets of the enterprise are achieved
- The learner ensures that the workers in his/her area of authority, i.e. the **lumber drying area**, are motivated, guided and trained in the prescribed manner in the relevant production and related activities.

Outcome 2

- Demonstrate the level of knowledge and understanding required at NQF level 4, of the prescribed work procedures, the safety and health and environmental protection measures in **lumber drying**, by describing and performing these correctly

Associated assessment criteria

- The learner's description demonstrates a knowledge and understanding of the work procedures, safety and health, and environmental protection measures, which complies with the prescriptions for the NQF Level 4 in **lumber drying**
- The learner's description is given in a clear and understandable manner
- The procedures prescribed for the relevant tasks regarding the work activity, safety and health and environmental protection measures, are applied correctly
- The learner's correct guidance and motivation of the workers in the performance of these activities ensures that the relevant tasks are performed as prescribed

Outcome 3

- Interpret, explain verbally or in writing, and comply with the prescribed aspects of legislation for NQF Level 4, that impacts on his/her work situation, relating to the Labour Relations Act, the Employment Equity Act, and the Basic Conditions of Employment Act

Associated assessment criteria

- The learner's explanation of the prescribed aspects of the relevant legislation proves that he/she has the required level of knowledge and understanding of these aspects
- The prescribed aspects of the relevant legislation are interpreted and explained correctly
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct legal terminology is used in the explanation
- The learner in his/her work situation correctly complies where relevant, with the prescribed aspects of the relevant legislation

Outcome 4

- Demonstrate the level of knowledge and understanding required at this level, regarding computer software packages relevant to lumber milling and their use, by explaining correctly the technology involved and correctly applying these programmes

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The relevant software programmes are operated with the prescribed level of skill

Outcome 5

- Demonstrate the level of knowledge and understanding required at NQF level 4, of quality control and assurance in the **lumber drying area**, by correctly explaining the procedures and applying these with the prescribed level of skill.

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The procedures for quality control and assurance in **lumber drying** are performed in the correct manner which ensures the achievement of the prescribed outcomes

Outcome 6

- Demonstrate the level of knowledge and understanding required at NQF Level 4, of the application of the prescribed aspects of productivity enhancement in the **lumber drying** area, by correctly explaining the procedures, and applying these with the prescribed level of skill

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The procedures for productivity enhancement in **lumber drying** are performed in the correct manner which ensures the achievement of the prescribed outcomes

Outcome 7

- demonstrate the knowledge and understanding required at NQF level 4, of the relevant details of the material being processed, by correctly describing the influence of the structure of wood, its properties and certain production factors on its quality

Associated assessment criteria

- The required level of knowledge and understanding of wood as a raw material, is proven by the correct verbal or written explanation of the influence of the structure of wood, its properties and certain production factors, on its quality
- The details regarding the influence of the structure of wood, its properties and certain production factors on its quality, are described correctly
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct wood technological terminology is used in the explanation

Every one of these exit level outcomes will be developed further in the learning programme for NQF Level 5 Lumber Milling: **Lumber Drying**, in order to comply with the knowledge and skills levels required at that level.

The successful achievement of all of the above exit level outcomes, is therefore a requirement for those learners who wish to continue their learning in this field at NQF Level 5.

Any learner who does not want to complete this qualification, can exit the learning programme after achieving outcomes 1 and 2, in order to accumulate credits for example for further learning in related learning pathways in lumber milling, or for other fields related to Wood Technology.

INTERNATIONAL COMPARABILITY

Information gained from visits to and from

- The British Columbia Institute for Technology, Vancouver Canada
 - The community college at Ashville in North Caroline, U.S.A
 - The Forestry Training Centre at Rotorua, New Zealand
 - The Technical and Further Education (TAFE) training institute in Mt Gambier Australia
- influenced the thinking on this and other Wood Technology qualifications.

Qualifications from those institutions and these are not exactly the same but learning programmes and hours of learning are comparable. The inclusion of labor legislation and other non-industry specific subjects make it even more uniquely South African.

The institutions listed above are all internationally recognized as centres of excellence in training and education in the Forestry/Wood Technology field.

INTEGRATED ASSESSMENT

The unit standards on which this qualification is based, describe the competent performance in **lumber drying**, and lay down the criteria by which competence should be judged, as well as the range of circumstances in which competence should be demonstrated.

For each unit standard there are corresponding performance assessment criteria, which describe the evidence an assessor should use to determine a learner's competence.

Integrated assessment methods and tools for this qualification must allow the learner to demonstrate that he/she has acquired the prescribed knowledge of and can safely and efficiently apply the required competence in the relevant aspects of **Lumber Drying**, as described in paragraph 6 (Purpose of this qualification), and paragraph 8 (Exit-level outcomes)

These tools are written or oral tests to determine level of knowledge and on-the-job observation, to determine applied competence, as summative assessment, for all the exit level outcomes at the completion of the learning programme.

The tools that can be used for formative assessment during and at the completion of the learning programme for each of the exit level outcomes, are oral testing, on the-job-observation, role-play situations and structured classroom discussions.

The assessor/s can decide which method will be the most appropriate in the particular situation where the assessment is taking place.

A portfolio of evidence of the outcomes of all these assessments for each learner must be built up for record purposes.

This portfolio may also include, inter alia

- Written statements from e.g. current or previous employer, colleagues, peers, managers, i.e. persons who can supply relevant references
- Relevant awards or certificates
- Previous assessment records
- Journals/logbook, records of work performance

The currently unemployed who followed a learning programme to achieve this qualification, as well as persons seeking recognition of prior learning, can be assessed in the same way

RECOGNITION OF PRIOR LEARNING

This qualification may be achieved in part or in whole by recognition of prior learning. The candidate in this case must be evaluated/assessed in the same manner as described in paragraph 10 above.

ARTICULATION POSSIBILITIES

The choice of elective learning components allows the learner to change to another pathway in lumber milling at the same level, or at the next higher level.

The fundamental and non-industry specific core learning components will equip the learner with credits which will be useful in other fields of learning that the learner might wish to change to at any future stage.

MODERATION OPTIONS

All providers offering the learning to achieve this qualification, must be registered with the ETQA division of FIETA.

All assessor/s must be registered with the ETQA division of FIETA, and must comply with the requirement for assessors as prescribed by this SETA. In addition the assessor/s must at least have the knowledge and skills levels in this field equivalent to those required by the NQF at Level 4, plus two years of practice in this field as a worker or expert consultant or provider. All moderators moderating the assessment of learners for this qualification, must be registered with the ETQA Division of FIETA.

NOTES

The Unit Standards for the "Fundamental" and those marked with asterisks in the "Core" component of learning in the qualification matrix will have to be drawn from other organising fields, or will have to be developed.

QUALIFICATION MATRIX FOR: National Certificate In Lumber Drying NQF Level 4

LEVEL 4	FUNDAMENTAL	CREDIT	CORE	CREDIT	ELECTIVE	CREDIT
	Literacy and communication skills	20	Demonstrate understanding of influence of wood structures, properties and production factors on its quality	15	Demonstrate understanding of relevant aspects of Lumber Milling maths	16
	Mathematical literacy	16	Manage production in relevant workplace	15	Manage production in lumber grading	15
			Manage workforce in this workplace	15	Manage production in dry mill	15
			Manage safety and health in this workplace	15	Manage production in FJ & Laminating	15
			* Demonstrate understanding of relevant aspects of Labour Relations Act	1	Demonstrate understanding of principles and application of productivity measures	20
			* Demonstrate understanding of relevant aspects of Employment Equity Act	1		
			* Demonstrate understanding of relevant aspects of Basic Conditions of Employment Act	1		
			* Demonstrate understanding of relevant aspects of Environmental management	1		
			* Demonstrate understanding of relevant aspects of Quality Assurance	1		
TOTAL		36		65	At least	20
TOTAL	LEVEL 4	121				

LUMBER DRYING NQF LEVEL 4**UNIT STANDARD TITLES AT NQF LEVEL 4**

Industry specific and unit standards available:

- Title 1. Manage technical requirements of lumber drying process in lumber mill
 - Title 2. Manage production in lumber drying area in lumber mill.
 - Title 3. Manage workforce in lumber drying area in lumber mill.
 - Title 4. Manage safety, health and environmental protection in lumber drying area in lumber mill.
 - Title 5. Demonstrate understanding of influence of wood structures, properties and certain production factors on wood quality.
- Any one or more of the following:
- Title 6. Manage production in lumber grading
 - Title 7. Manage production in dry mill
 - Title 8. Manage production in FJ & Laminating

Unit standards for the following non -industry specific learning components were not available at the time of the development of this qualification and will have to be sourced from the relevant organizing fields/NSB's.

- Title 9. Demonstrate understanding of the relevant aspects of the Labour Relations Act regarding negotiations and the South African labour market.
- Title 10. Demonstrate understanding of the relevant aspects of the Employment Equity Act regarding its general provisions
- Title 11. Demonstrate understanding of the relevant aspects of the Basic Conditions of Employment Act regarding variations in basic conditions.
- Title 12. Demonstrate understanding of the relevant aspects of Computer Literacy regarding networking and systems.
- Title 13. Demonstrate understanding of the relevant aspects of Environmental Management regarding ISO 14 000 and other systems.
- Title 14. Demonstrate understanding of the relevant aspects of Quality Assurance regarding quality audits.
- Title 15. Demonstrate understanding of principles and application of productivity measures

UNIT STANDARDS TITLES AND SPECIFIC OUTCOMES AT LNQF LEVEL 4**1. Title: Manage technical requirements of lumber drying process in lumber mill**

Specific Outcome 1.1: Plan lumber drying programme to meet demand for product quality and volume.

Specific Outcome 1.2: Ensure availability of drying facilities to deliver required volume and quality of product.

Specific Outcome 1.3: Oversee the selection of appropriate kiln drying schedules to produce the required volume and quality of product.

Specific Outcome 1.4: Oversee operation of kilns and control of the drying process.

2. Title: Manage production in lumber drying area in lumber mill.

Specific Outcome 2.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 2.2: Record the progress of these production runs and quality of output.

Specific Outcome 2.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 2.4: Adapt procedures if necessary, to achieve original output targets.

Specific Outcome 2.5: Analyze data on completed production runs to provide information for future improvements.

3. Title: Manage workforce in lumber drying area in lumber mill.

Specific Outcome 3.1: Lead, communicate with and motivate the personnel employed in the relevant workplace in the lumber mill.

Specific Outcome 3.2: Manage the education and training of personnel.

Specific Outcome 3.3: Apply the relevant disciplinary and grievance procedures.

Specific Outcome 3.4: Keep employment records of personnel involved in the activities of the relevant workplace.

4. Title: Manage safety, health and environmental protection in lumber drying area in lumber mill.

Specific Outcome 4.1: Ensure that the health and safety measures and environment protection procedures prescribed for the relevant workplace are understood and adhered to.

Specific Outcome 4.2: Ensure that these measures and procedures are applied as prescribed to make the workplace safe for workers and free from health hazards, and to prevent environmental contamination.

Specific Outcome 4.3: Train all workers in this workplace in emergency drills, practical first aid application and handling environmental pollution procedures relevant to this workplace.

Specific Outcome 4.4: Ensure that first aid materials and tools and equipment for emergency contingencies, are clearly visible and easily accessible.

Specific Outcome 4.5: Ensure the accurate recording of first aid activities, emergency situations and cases of environmental pollution, indicating reasons for occurrence, remedial actions taken, and results/outcomes.

5. Title: Demonstrate understanding of influence of wood structures, properties and certain production factors on wood quality.

Specific Outcome 5.1: Explain the wood quality requirements generally specified by the main users of wood products.

Specific Outcome 5.2: Describe the effect of wood growth properties on these quality requirements.

Specific Outcome 5.3: Describe the effect of machined wood properties on these quality requirements.

Specific Outcome 5.4: Describe the effect of the drying out process of wood on these quality requirements.

6. Title: Manage production in lumber grading.

Specific Outcome 6.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 6.2: Record the progress of these production runs and quality of output.

Specific Outcome 6.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 6.4: Adapt procedures if necessary, to achieve original output targets.

Specific Outcome 6.5: Analyze data on completed production runs to provide information for future improvements.

7. Title: Manage production in dry mill.

Specific Outcome 7.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 7.2: Record the progress of these production runs and quality of output.

Specific Outcome 7.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 7.4: Adapt procedures if necessary, to achieve original output targets.

Specific Outcome 7.5: Analyze data on completed production runs to provide information for future improvements.

8. Title: Manage production in FJ & Laminating.

Specific Outcome 8.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 8.2: Record the progress of these production runs and quality of output.

Specific Outcome 8.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 8.4: Adapt procedures if necessary, to achieve original output targets.

Specific Outcome 8.5: Analyze data on completed production runs to provide information for future improvements.

No. 266

8 March 2002

NATIONAL CERTIFICATE IN DRY LUMBER PROCESSING NQF LEVEL 1

Field:	Agriculture and Nature Conservation.
Sub-field:	Forestry and Wood Technology.
Level:	1
Credit:	146 for Lumber Grading or 141 for Dry Mill Conversion or 146 for Finger Jointing and Laminating

RATIONALE FOR THE QUALIFICATION

NOTE: Dry Lumber Processing includes Lumber Grading, Dry Mill Conversion and Finger Jointing and Laminating. The learner has the option of at least one of these for a learnership programme, certain aspects of the other two then becoming electives. The Lumber Grading process is an evaluation process. It usually produces products of different strength and/or appearance grades. In the Dry Mill Conversion process, dried lumber is sawn to narrower and/or thinner products. These products can also be planed and /or moulded. The Finger Jointing and Laminating activity produces longer, thicker and wider products through a process of jointing and glueing. (Processing facilities).

The typical range of learners is the currently employed, unemployed and other persons, who want to enter a learning programme to obtain a National Certificate in Wood Technology: Lumber Milling (Dry Lumber Processing) at NQF Level 1, to start building a career path in this industry.

These learners, once qualified, will be able to effectively and efficiently work as general workers/mill hands, individually or in teams, on tasks they are responsible for at this level in the dry lumber processing area. South African lumber millers are facing an increasing demand for better quality products at more competitive prices. This is leading to an increased demand for more knowledgeable and better skilled personnel to produce such products. Historically this industry experienced various forms of protection. Lumber mill personnel at the lower levels were only exposed to unplanned, periodic, ad-hoc learning programmes, which did not establish an appropriately trained workforce. All protection has now been removed. This industry is now part of the global market, and it must be competitive in price and quality to survive. It can only achieve this through improved knowledge and skills levels. The new education and training dispensation can deliver this. Therefore a demand, which will increase in the future.

This qualification equips learners with identified competencies in knowledge and skills at NQF Level 1 and it provides a basis for further learning at NQF Level 2. The exit level outcomes, which embody these competencies in knowledge and skills are listed in paragraph 8 below. The fundamental outcomes as well as the non-industry specific core of the unit standards required at this level, also provide the learner with building blocks for a learning pathway outside this industry. The choice of electives allows the learner the option of continuing his/her learning in any of four other areas in the lumber milling field.

The learning programme, which leads to this qualification, produces a person who is knowledgeable about and appropriately skilled in performing the relevant tasks in the dry lumber processing area. Persons without any training or with another type of training, or persons who had undergone the ad-hoc type of training which was prevalent under the previous dispensation, will not be of the same quality for this work than a learner with this qualification.

Improved levels of knowledge and skills lead to greater ability to produce at more competitive costs and better quality, increased sales, greater profits, more personal income, which will impact favourably both on the society and the economy of the country.

PURPOSE OF THE QUALIFICATION

A learner acquiring this qualification will be able to operate as a knowledgeable and appropriately skilled mill hand (general worker), in an effective and efficient manner, either as a member of a working team or an individual when required, performing the tasks prescribed for this level in the unit standards for processing tree stems into sawn lumber i.e. dry lumber processes.

The learner will know and understand the general basics of lumber milling and the relevant details of dry lumber processing. He/she will be able to perform the relevant tasks in this workplace to the prescribed standards, while correctly following the prescribed work procedures, and the health and safety and environmental protection measures applicable to the dry lumber processing area. The learner will be able to interpret and comply with the prescribed aspects of certain legislation impacting on his/her work situation. The learner will be able to communicate effectively, orally or in writing, with co-workers and responsible persons in this workplace.

This qualification provides the qualifying learner with legal proof of having achieved prescribed levels of knowledge and practical competence, where up till the present time, this only existed for tertiary educated persons.

The learning programme that leads to this qualification improves the operating abilities and therefore the earning ability of the qualifier, which must contribute to the social and economic development of the country.

This qualification qualifies a person who has successfully demonstrated his/her knowledge levels and competence in the skills prescribed for Wood Technology: Lumber Milling (Dry Lumber Processing) for NQF Level 1, to enroll for an NQF Level 2 Learnership and Qualification in this domain. It ensures a foundation for a structured career path for the learner.

This Qualification forms part of the Learnership in Wood Technology: Lumber Milling (Dry Lumber) (NQF Level 1), which, together with 3 other qualifications at this level, constitute the basis of the NQF for Wood Technology. It facilitates access to and mobility within learning pathway in Lumber Milling and other Wood Technology learning pathways.

This qualification supports the objectives of the National Qualification Framework regarding access, mobility and progression, quality of learning, redress of unfair discrimination and contribution to personal development and social and economic development of the nation.

ACCESS TO QUALIFICATION

There is open access to this qualification. This Qualification is achievable by any person who can demonstrate the knowledge and skills levels, required by the fundamental, core and elective unit standards on which this qualifications is based. Prospective learners do however have to note that certain tasks will be physically demanding.

LEARNING ASSUMED TO BE IN PLACE

A learner registering for this qualification, must have literacy, communication and mathematical skills equivalent to Grade 8 schooling or ABET Level 3.

EXIT-LEVEL OUTCOMES

The qualifying learner can:

Outcome 1

Demonstrate the required level of knowledge and understanding of the general basics of lumber milling and the relevant details of dry lumber processing, by describing these verbally or in writing, in a clear and understandable manner, using the correct wood technological terminology

Associated assessment criteria

The description proves that the learner possesses the required level of knowledge and understanding of the subject field

The description gives the correct details of the relevant aspects of lumber milling and dry lumber processing

The description is given in a clear and understandable manner

The correct wood technological terminology is used

Outcome 2

Perform the prescribed tasks of a mill hand (general worker), as a working team member or as an individual, in dry lumber processing, showing the ability to co-operate, and understand and execute instructions.

Associated assessment criteria

The procedures prescribed for the relevant tasks are applied correctly

The outcomes of the performance of the relevant tasks comply with the prescribed targets

The learner co-operates successfully as a working team member

Instructions are executed as prescribed

Outcome 3

Demonstrate the level of knowledge and understanding required at NQF level 1, of the prescribed work procedures, the safety and health and environmental protection measures in dry lumber processing, by describing and performing these correctly

Associated assessment criteria

The description proves that the learner has achieved the level of knowledge and understanding prescribed for NQF Level 1 in dry lumber processing

The details given in the description are correct

The description, verbally or written, is given in a clear and structured manner

The correct technological terminology is used

The relevant procedures and measures are performed as prescribed

Outcome 4

Interpret, explain verbally or in writing, and comply with the prescribed aspects of legislation that impacts on his/her work situation, relating to the OSH Act, the Labour Relations Act and the Skills Development Act

Associated assessment criteria

The explanation proves that the learner has the level of knowledge and understanding of the subject matter which ensures correct interpretation and compliance

The details of the prescribed aspects of the relevant legislation are interpreted and explained correctly

The explanation of the interpretation is given in a clear and understandable manner

The correct legal terminology is used in the explanation

The learner in his/her work situation correctly complies with the prescribed aspects of the relevant legislation

Every one of these exit level outcomes will be developed further in the learning programme for Lumber Milling: Dry Lumber Processing, NQF Level 2 in order to comply with the knowledge and skills levels required at that level.

The successful achievement of all of the above exit level outcomes, is therefore a requirement for those learners who wish to continue their learning in this field at NQF Level 2.

Any learner who does not want to complete this qualification, can exit the learning programme after achieving outcomes 1 and 2, in order to accumulate credits for example for further learning in related learning pathways in lumber milling, or for other fields related to Wood Technology.

INTERNATIONAL COMPARABILITY

Information gained from visits to and from
The British Columbia Institute for Technology, Vancouver Canada
The community college at Ashville in North Caroline, U.S.A
The Forestry Training Centre at Rotorua, New Zealand
The Technical and Further Education (TAFE) training institute in Mt Gambier Australia
influenced the thinking on this and other Wood Technology qualifications.

Qualifications from those institutions and these are not exactly the same but learning programmes and hours of learning are comparable. The inclusion of labor legislation and other non-industry specific subjects make it even more uniquely South African.

The institutions listed above are all internationally recognized as centres of excellence in training and education in the Forestry/Wood Technology field.

INTEGRATED ASSESSMENT

The unit standards on which this qualification is based, describe the competent performance in Dry Lumber Processing, and lay down the criteria by which competence should be judged, as well as the range of circumstances in which competence should be demonstrated. For each unit standard there are corresponding performance assessment criteria which describe the evidence an assessor should use to determine a learner's competence.

Integrated assessment methods and tools for this qualification must allow the learner to demonstrate that he/she has acquired the knowledge of and can safely and efficiently apply the required competence in the relevant aspects of activities of Dry Lumber Processing, as described in paragraph 6 (purpose of this qualification) and paragraph 8 (exit level outcomes). These tools are written or oral test to determine level of knowledge and on-the-job observation to determine applied competence, as summative assessment, for all the exit level outcomes at the completion of the learning programme. The tools that can be used for formative assessment during and at the completion of the learning programme for each of the exit level outcomes, are oral testing, on-the-job observation and role-play situations. The assessor/s can decide which method will be the most appropriate in the particular situation where the assessment is taking place.

A portfolio of evidence of the outcomes of all these assessments for each learner must be built up for record purposes.

This portfolio may also include, inter alia:

Written statements from e.g. current or previous employer, colleagues, peers, managers, i.e. persons who can supply relevant references.

Relevant awards or certificates.

Previous assessment records.

Journals/logbook, records of work performance.

The currently unemployed who followed a learning programme to achieve this qualification, as well as persons seeking recognition of prior learning, can be assessed in the same way.

RECOGNITION OF PRIOR LEARNING

This qualification may be achieved in part or in whole by recognition of prior learning. The candidate in this case must be evaluated/assessed in the same manner as described in paragraph 10 above.

ARTICULATION POSSIBILITIES

The choice of elective learning components allows the learner to change to another pathway in lumber milling at the same level, or at the next higher level.

The fundamental and non-industry specific core learning components will equip the learner with credits which will be useful in other fields of learning that the learner might wish to change to at any future stage.

MODERATION OPTIONS

All providers offering the learning to achieve this qualification, must be registered with the ETQA division of FIETA.

All assessor/s must be registered with the ETQA division of FIETA, and must comply with the requirement for assessors as prescribed by this SETA. In addition, the assessor/s must at least have knowledge and skills levels in this field equivalent to those required by the NQF at level 4, plus two years of practice in this field as a worker or expert consultant or provider. All moderators moderating the assessment of learners for this qualification, must be registered with the ETQA Division of FIETA.

NOTES

The Unit Standards for the "Fundamental" and those marked with asterisks in the "Core" component of learning in the qualification matrix will have to be drawn from other organising fields, or will have to be developed.

QUALIFICATION MATRIX FOR: National Certificate In Dry Lumber Processing NQF Level 1

LEVEL 1	FUNDAMENTAL	CREDIT	CORE	CREDIT	ELECTIVES	CREDIT
	Literacy and Communication Skills	20	Demonstrate understanding of the general basics of lumber milling operation	10	Demonstrate understanding of the relevant details of saw doctor shop	15
	Mathematical Literacy	16	Demonstrate understanding of relevant details of the specific workplace	15	Demonstrate understanding of the relevant details of the green timber processing area	10
			Ensure cleanliness in the dry lumber processing area in the lumber mill	10	Demonstrate understanding of the relevant details of the lumber grading area	15
			Perform manual handling in the dry lumber processing in the lumber mill	10	Demonstrate understanding of the relevant details of the lumber drying area	15
			And one or more of the following		Demonstrate understanding of the relevant details of the dry mill conversion area	15
			LUMBER GRADING Sort and stack graded lumber or	5	Demonstrate understanding of the relevant details of the Finger Jointing and Laminating area	15
			DRY MILL CONVERSION or	0		
			FINGER J. & LAMINATING Handle, mix and apply glue etc	5		
			plus			
			*Demonstrate understanding of the relevant aspects of the Occupational Health and Safety Act	3		
			*Demonstrate understanding of the relevant aspects of Labour Relations Act	3		30
			*Demonstrate understanding of the relevant aspects of the Skills Development Act	3		
			*Demonstrate understanding of the relevant aspects of environmental protection	3		
			*Demonstrate understanding of the relevant aspects of quality assurance	3		
TOTAL		56	Lumber Grading Option or Dry Mill Conversion Option or Finger Jointing and Laminating	65 60 65	Lumber Grading Option or Dry Mill Conversion Option or Finger Jointing and Laminating	25 25 25
	Lumber Grading Option or	146				
	Dry Mill Conversion Option or	141				
	Finger Jointing and Laminating	146				

DRY LUMBER PROCESSING NQF LEVEL 2**UNIT STANDARDS TITLES AT NQF LEVEL 2**

Industry specific and unit standards available:-

Title 1. Perform basic maintenance and lubrication in dry lumber processing area in lumber mill.

Title 2. Demonstrate understanding of different parts of tree and its stem on cross-section.

Select one of the following options:-

Title 3. Lumber Grading.

- a. Demonstrate understanding of specific details of lumber grading process in lumber mill.
- b. Follow procedures to assist in grading lumber in lumber mill.

Title 4. Dry Mill Conversion.

- a. Demonstrate understanding of specific details of dry mill conversion in lumber mill.
- b. Demonstrate understanding of dry milling activities in lumber mill.

Title 5. Finger-jointing and Laminating

- a. Organise necessary materials used in finger-jointing and laminating facilities of a lumber mill.
- b. Follow procedures to assist in glue application process and operating equipment in finger-jointing and laminating facilities of lumber mill.
- c. Follow procedures to assist to set up and operate finger-jointing and laminating equipment in lumber mill.

And one or more of the following:-

Title 6. Follow procedures to assist to set up green timber processing facilities

Title 7. Demonstrate understanding of specific details of lumber grading (not for lumber grading option)

Title 8. Demonstrate understanding of the basic principles of lumber kiln drying area

Title 9. Demonstrate understanding of details of dry milling process (not for dry mill conversion option)

Title 10. Follow procedures to assist to set up and operate FJ & Lam equipment (not for finger-jointing and laminating option)

Unit standards for the following non- industry specific learning components were not available at the time of the development of this qualification and will have to be sourced from the relevant organizing fields/NSB's.

Title 11. Demonstrate understanding of the aspects of the Occupational Safety Health Act regarding listed work, health and safety reps and committees.

Title 12. Demonstrate understanding of the aspects of the Labour Relations Act regarding general protection and organisational rights, bargaining institutions, resolving disputes, disciplinary and grievance procedures, right to strike and right to lock out.

Title 13. Demonstrate understanding of the relevant aspects of the Employment Equity Act regarding its interpretation and application and prohibition of unfair discrimination.

Title 14. Demonstrate understanding of the relevant aspects of the Skills Development Act regarding workplace skills plan, its purpose, compilation and execution.

Title 15. Demonstrate understanding of the relevant aspects of the Basic Condition of Employment Act regarding principles of the Act, working time, leave and remuneration.

Title 16. Demonstrate understanding of the relevant aspects of Business Principles regarding shareholding, profits and losses.

Title 17. Demonstrate understanding of the relevant aspects of Computer Literacy regarding what is a computer and basic word processing.

Title 18. Demonstrate understanding of the relevant aspects of Environmental Management regarding operational principles and employees' responsibilities.

Title 19. Demonstrate understanding of the relevant aspects of Quality Assurance regarding principles of quality sampling procedures and basic principles of material and product specifications.

Title 20. Demonstrate understanding of relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) c) regarding concept of volume and area measurement, use of measuring tools and

instruments, methods of measuring (mensuration), and concept of shapes.

UNIT STANDARDS TITLES AND SPECIFIC OUTCOMES AT NQF LEVEL 2

1. Title: Perform basic maintenance and lubrication in dry lumber processing area in lumber mill.

Specific Outcome 1.1: Explain the procedures for the basic maintenance and lubrication programme for the facilities in the relevant workplace in the lumber mill.

Specific Outcome 1.2: Describe the cleaning equipment, materials and other aids to be used in the process.

Specific Outcome 1.3: Describe the storage location and inventory proceedings for the maintenance and lubrication materials and tools.

Specific Outcome 1.4: Perform the basic maintenance and lubrication programme as prescribed

2. Title: Demonstrate understanding of different parts of tree and its stem on cross-section.

Specific Outcome 2.1: Identify the main parts of a tree.

Specific Outcome 2.2: Identify those main features of wood visible to the naked eye on the cross section of a tree stem.

Specific Outcome 2.3: Identify the special growth features of wood that usually affect dried quality of wood.

Specific Outcome 2.4: Explain the basic differences between hardwoods and softwoods

3. Title: Demonstrate understanding of specific details of lumber grading process in lumber mill.

Specific Outcome 3.1: Explain the relevant visual grading rules and specifications for the appearance grade products that the relevant enterprise produces.

Specific Outcome 3.2: Explain the relevant visual grading rules, and specifications for stress (strength) graded product that this enterprise produces.

Specific Outcome 3.3: Explain the relevant mechanical grading rules and specifications for the various stress (strength) grade products that this enterprise produces.

Specific Outcome 3.4: Explain the relevant grading marks for the various grades of products that are produced, and their respective placements on these products.

4. Title: Follow procedures to assist in grading lumber in lumber mill.

Specific Outcome 4.1: Prepare the relevant grading facilities.

Specific Outcome 4.2: Access, prepare and present the ungraded lumber for the grading process.

Specific Outcome 4.3: Follow procedures to assist to perform the relevant grading task.

Specific Outcome 4.4: Oversee the preparation of the graded lumber for dispatch. (i.e. collection, sorting, parcelling, stamping the grade marks and strapping of parcels of graded lumber).

5. Title: Demonstrate understanding of specific details of dry mill conversion in lumber mill

- Specific Outcome 5.1: Explain the purpose and process of rip-sawing to recover narrower and/or thinner products from dried lumber.
- Specific Outcome 5.2: Explain the purpose and process of cross-cutting to recover shorter products from dried lumber.
- Specific Outcome 5.3: Explain the purpose and process of planning lumber.
- Specific Outcome 5.4: Explain the purpose and process of moulding lumber.
- Specific Outcome 5.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area.

6. Title: Demonstrate understanding of dry milling activities in lumber mill.

- Specific Outcome 6.1: Explain the procedure to identify, access and present material to be processed.
- Specific Outcome 6.2: Explain the purpose and process in setting up the relevant production machines / facilities.
- Specific Outcome 6.3: Explain the purpose and process of operating the relevant production machine / facility.
- Specific Outcome 6.4: Explain the purpose and process of parcelling, marking and preparing consignments of products for dispatch.
- Specific Outcome 6.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area.

7. Title: Organise necessary materials used in finger-jointing and laminating facilities of a lumber mill.

- Specific Outcome 7.1: Explain the purpose and process of the receipt and storage of adhesives.
- Specific Outcome 7.2: Explain the purpose and process of withdrawal of glue components from storage and what the mixing process entails
- Specific Outcome 7.3: Explain the purpose and process of delivering glue mixes to designated workstations.
- Specific Outcome 7.4: Explain the purpose and process of preparing the relevant glue applicators and spreaders.
- Specific Outcome 7.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area

8. Title: Follow procedures to assist in glue application process and operating equipment in finger-jointing and laminating facilities of lumber mill.

- Specific Outcome 8.1: Explain the purpose and process of recording the material coming into the Finger Jointing and Laminating processes and directing them to their relevant holding areas.
- Specific Outcome 8.2: Explain the purpose and process of the production flow from the first to the last activity in this work area and maintaining a regular flow of material through all these activities / processes.

Specific Outcome 8.3: Explain the purpose and process of the procedures and the setting up of the equipment for production runs.

Specific Outcome 8.4: Explain the purpose and process of the operation of the equipment in this work area.

Specific Outcome 8.5: Explain the purpose and process of the waste disposal facilities in this work area.

Specific Outcome 8.6: Explain the work procedures, safety and health measures and environmental.

9. Title: Follow procedures to assist to set up and operate finger-jointing and laminating equipment in lumber mill.

Specific Outcome 9.1: Explain the purpose and process of feeding finger-joint cutter machine.

Specific Outcome 9.2: Explain the purpose and process of applying glue to finger profiles for necessary coverage to the whole of each intermeshing surface of each finger manually and / or mechanically. and what is meant by correct axail alignment.

Specific Outcome 9.3: Explain the purpose and process of feeding out jointed pieces supported from the press at the correct time and crosscut.

Specific Outcome 9.4: Explain the purpose and process of stacking finger-jointed material for curing

Specific Outcome 9.5: Explain the purpose and process of feeding laminates through glue applicator equipment.

Specific Outcome 9.6: Explain the purpose and process laying up glued laminates in relevant jig for pressing.

Specific Outcome 9.7: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area.

10. Title: Follow procedures to assist to set up green timber processing facilities.

Specific Outcome 10.1: Follow procedures to assist in maintaining a regular / constant flow of materials through all the processing phases in the wet mill.

Specific Outcome 10.2: Follow procedures to assist in setting up green timber processing equipment for production runs in the wet mill.

Specific Outcome 10.3: Follow procedures to assist in operating green timber processing machines/equipment and materials handling equipment in the wet mill.

Specific Outcome 10.4: Follow procedures to assist in the removal and disposal of wood waste in the prescribed manner, place and time in the wet mill.

11. Title: Demonstrate understanding of specific details of lumber grading (not for lumber grading option).

Specific Outcome 11.1: Explain the relevant visual grading rules and specifications for the appearance grade products that the relevant enterprise produces.

Specific Outcome 11.2: Explain the relevant visual grading rules, and specifications for stress (strength) graded product that this enterprise produces.

Specific Outcome 11.3: Explain the relevant mechanical grading rules and specifications for the various stress (strength) grade products that this enterprise produces.

Specific Outcome 11.4: Explain the relevant grading marks for the various grades of products that are produced, and their respective placements on these products.

12. Title: Demonstrate understanding of the basic principles of the lumber kiln drying area

Specific Outcome 12.1: Explain the basic factors that must be taken into consideration in a kiln drying schedule

Specific Outcome 12.2: Explain types of kiln drying schedules

Specific Outcome 12.3: Describe the stages of a kiln drying schedule

Specific Outcome 12.4: Explain the process of determining drying rate and end point of drying cycle

13. Title: Demonstrate understanding of details of dry milling process (not for dry mill conversion option)

Specific Outcome 13.1: Explain the purpose and process of rip-sawing to recover narrower and/or thinner products from dried lumber.

Specific Outcome 13.2: Explain the purpose and process of cross-cutting to recover shorter products from dried lumber.

Specific Outcome 13.3: Explain the purpose and process of planning lumber.

Specific Outcome 13.4: Explain the purpose and process of moulding lumber.

Specific Outcome 13.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area.

14. Title: Follow procedures to assist to set up and operate FJ & Lam equipment (not for finger-jointing and laminating option)

Specific Outcome 14.1: Explain the purpose and process of feeding finger-joint cutter machine.

Specific Outcome 14.2: Explain the purpose and process of applying glue to finger profiles for necessary coverage to the whole of each intermeshing surface of each finger manually and / or mechanically and what is meant by correct axial alignment

Specific Outcome 14.3: Explain the purpose and process of feeding out jointed pieces supported from the press at the correct time and crosscut

Specific Outcome 14.4: Explain the purpose and process of stacking finger-jointed material for curing

Specific Outcome 14.5: Explain the purpose and process of feeding laminates through glue applicator equipment.

Specific Outcome 14.6: Explain the purpose and process laying up glued laminates in relevant jig for pressing.

Specific Outcome 14.7: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area.

No. 267

8 March 2002

NATIONAL CERTIFICATE IN DRY LUMBER PROCESSING NQF LEVEL 2**Field:** Agriculture and Nature Conservation.**Sub-field:** Forestry and Wood Technology.**Level:** 2**Credit:** 130 for Lumber Grading or
130 for Dry Mill Conversion or
124 for Finger Jointing and Laminating**RATIONALE FOR THE QUALIFICATION**

NOTE: Dry Lumber Processing includes Lumber Grading, Dry Mill Conversion and Finger Jointing and Laminating. The learner has the option of at least one of these for a learnership programme, certain aspects of the other two then becoming electives. The Lumber Grading process is an evaluation process. It usually produces products of different strength and/or appearance grades. In the Dry Mill Conversion process, dried lumber is sawn to narrower and/or thinner products. These products can also be planed and /or moulded. The Finger Jointing and Laminating activity produces longer, thicker and wider products through a process of jointing and glueing.

The typical range of learners is the currently employed, unemployed and other persons, who want to enter a learning programme to obtain a National Certificate in Wood Technology: Lumber Milling (Dry Lumber Processing) at NQF Level 2, to continue building a career path in this industry.

These learners, once qualified, will be able to effectively and efficiently work as assistant operators and team leaders, on tasks they are responsible for at this level in the relevant workplace, in the dry lumber processing area.

South African lumber millers are facing an increasing demand for better quality products at more competitive prices. This is leading to an increased demand for more knowledgeable and better skilled personnel to produce such products. Historically this industry experienced various forms of protection. Lumber mill personnel at the lower levels were only exposed to unplanned, periodic, ad-hoc learning programmes, which did not establish an appropriately trained workforce. All protection has now been removed. This industry is now part of the global market, and it must be competitive in price and quality to survive. It can only achieve this through improved knowledge and skills levels. The new education and training dispensation can deliver this. Therefore a demand, which will increase in the future.

This qualification equips learners with identified competencies in knowledge and skills at NQF Level 2 and it provides a basis for further learning at NQF Level 3. The exit level outcomes, which embody these competencies in knowledge and skills are listed in paragraph 8 below. The fundamental outcomes as well as the non-industry specific core outcomes required at this level, also provide the learner with building blocks for a learning pathway outside this industry. The choice of electives allows the learner the option of continuing his/her learning in any of four other areas in the lumber milling field.

The learning programme, which leads to this qualification, produces a person who is knowledgeable about and appropriately skilled in performing the relevant tasks in the dry lumber processing area. Persons without any training or with another type of training, or persons who had undergone the ad-hoc type of training which was prevalent under the previous dispensation, will not be of the same quality for this work than a learner with this qualification.

ACCESS TO QUALIFICATION

There is open access to this qualification. This Qualification is achievable by any person who can demonstrate the knowledge and skills levels, required by the fundamental, core and elective unit standards on which this qualifications is based. Prospective learners do however have to note that certain tasks will be physically demanding.

LEARNING ASSUMED TO BE IN PLACE

It will be assumed that a learner who registers for this qualification, will have successfully mastered the following outcomes:

Fundamental learning

Unit standards not available at this time:

Literacy and communication skills equivalent to NQF Level 1 requirements.

Mathematical skills equivalent to NQF Level 1 requirements.

Core learning

Industry specific and Unit standards available:

Demonstrate understanding of the general basics of the lumber milling operation.

Demonstrate understanding of details of equipment, processes and procedures in the dry lumber processing area.

Ensure cleanliness in the dry lumber processing area.

perform manual handling in the dry lumber processing area.

Not industry specific and unit standards not available at this time:

Demonstrate understanding of the general obligations of employers, general duties of employees at work (the OSH Act).

Demonstrate understanding of the general principles of freedom of association, freedom from victimisation, employer and employee organisations (Labour Relations Act).

Demonstrate understanding of the general principles and requirements of learnerships and qualifications (Skills Development Act).

Have an awareness of pollution factors in workplace.

Demonstrate understanding of the basics of quality requirements in processes and products.

Elective Learning

Industry specific and Unit standards available

At least one of the following:

Demonstrate understanding of the relevant details of the saw doctor shop.

Demonstrate understanding of the relevant details of the green timber processing area.

Demonstrate understanding of the relevant details of lumber drying.

Demonstrate understanding of the relevant details of the lumber grading area.

Demonstrate understanding of the relevant details of the dry milling area.

Demonstrate understanding of the relevant details of finger jointing and laminating.

Cross-field outcomes

Demonstrate understanding of instructions, work effectively and efficiently, individually or as a team member, and report effectively and correctly to the relevant person/s on tasks delegated to him/her in his/her work area in the green timber processing facilities.

EXIT LEVEL OUTCOMES

The qualifying learner can:

Outcome 1

Describe correctly and carry out the tasks prescribed in the unit standards for NQF Level 2 in dry lumber processing, of leading a work team and lending assistance in setting up or preparing production equipment, and operating such as a stand-by for the responsible person, demonstrating the leadership qualities and communication abilities required by his/her work situation.

Associated assessment criteria

The learner's description of the procedures involved in his/her prescribed tasks proves that he/she has the level of knowledge and understanding of these as required at NQF Level 2

The relevant tasks are performed as prescribed

The learner communicates effectively with the responsible person/s and other workers in his/her work situation and understands and executes instructions regarding the relevant activities correctly

The learner gives the prescribed quality of leadership to the work team he/she must lead when required

The learner's contribution to the relevant production activity assures that the required delivery/production rate is maintained

Reported problems in the relevant production activities or workplace are evaluated correctly and the outcomes reported as prescribed to the responsible person.

Outcome 2

Demonstrate the level of knowledge and understanding required at NQF level 2, of the prescribed work procedures, the safety and health and environmental protection measures in dry lumber processing, by describing and performing these correctly

Associated assessment criteria

The learner's description of the procedures involved in carrying out the activities in the workplace and applying the health and safety and environmental protection measures, proves that he/she has achieved the knowledge and understanding of these as required at NQF Level 2 for dry lumber processing

The procedures prescribed for the relevant tasks regarding the work activity, safety and health and environmental protection measures, are applied correctly

The learner's contribution in the performance of these activities ensures the successful execution of the relevant tasks

The learner co-operates successfully as a working team leader
instructions are executed as prescribed

Outcome 3

Interpret, explain verbally or in writing, and comply with the prescribed aspects of legislation for NQF Level 2, that impacts on his/her work situation, relating to the OSH Act, the Labour Relations Act, the Skills Development Act, the Employment Equity Act, and the Basic Conditions of Employment Act

Associated assessment criteria

The learner's explanation of the prescribed aspects of the relevant legislation proves that he/she has the required level of knowledge and understanding of these aspects

The prescribed aspects of the relevant legislation are interpreted and explained correctly

The explanation is given in a structured and understandable manner of a standard required at this level

The correct legal terminology is used in the explanation

The learner in his/her work situation correctly complies where relevant, with the prescribed aspects of the relevant legislation

Outcome 4

Demonstrate the level of knowledge and understanding required at NQF level 2, by explaining correctly and clearly the relevant aspects of running a business (Business Principles)

Associated assessment criteria

The required level of knowledge and understanding is proven by the correct verbal or written explanation

The explanation is given in a structured and understandable manner of a standard required at this level

The correct terminology is used in the explanation

Outcome 5

Demonstrate the level of knowledge and understanding required at this level, of what a computer is, and how to perform basic word processing, by explaining correctly the technology involved and correctly operating a basic word processing programme.

Associated assessment criteria

The required level of knowledge and understanding is proven by the correct verbal or written explanation

The explanation is given in a structured and understandable manner of a standard required at this level

The correct terminology is used in the explanation

The basic word processing programme is operated with the prescribed level of skill

Outcome 6

Demonstrate the level of knowledge and understanding required at this level of quality control and assurance in the dry lumber processing area, by correctly explaining the procedures and applying these with the prescribed level of skill.

Associated assessment criteria

The required level of knowledge and understanding is proven by the correct verbal or written explanation

The explanation is given in a structured and understandable manner of a standard required at this level

The correct terminology is used in the explanation

The procedures for quality control and assurance in dry lumber processing are performed in a manner, which ensures the achievement of the prescribed outcomes.

Outcome 7

Demonstrate the level of knowledge and understanding required at this level, of the relevant details of the material being processed, by correctly describing the parts of a tree and its stem on a cross-section.

Associated assessment criteria

The required level of knowledge and understanding of wood as a raw material, is proven by the correct verbal or written explanation

The correct details regarding the parts of a tree and its stem on a cross-section are described

The explanation is given in a structured and understandable manner of a standard required at this level

The correct wood technological terminology is used in the explanation

Every one of these exit level outcomes will be developed further in the learning programme for NQF Level 3 Lumber Milling: Dry Lumber Processing, in order to comply with the knowledge and skills levels required at that level.

The successful achievement of all of the above exit level outcomes, is therefore a requirement for those learners who wish to continue their learning in this field at NQF Level 3.

Any learner who does not want to complete this qualification, can exit the learning programme after achieving outcomes 1 and 2, in order to accumulate credits for example for further learning in related learning pathways in lumber milling, or for other fields related to Wood Technology.

INTERNATIONAL COMPARABILITY

Information gained from visits to and from

The British Columbia Institute for Technology, Vancouver Canada

The community college at Ashville in North Carolina, U.S.A

The Forestry Training Centre at Rotorua, New Zealand

The Technical and Further Education (TAFE) training institute in Mt Gambier Australia

influenced the thinking on this and other Wood Technology qualifications.

Qualifications from those institutions and these are not exactly the same but learning programmes and hours of learning are comparable. The inclusion of labor legislation and other non-industry specific subjects make it even more uniquely South African.

The institutions listed above are all internationally recognized as centres of excellence in training and education in the Forestry/Wood Technology field.

INTEGRATED ASSESSMENT

The unit standards on which this qualification is based, describe the competent performance in Dry Lumber Processing, and lay down the criteria by which competence should be judged, as well as the range of circumstances in which competence should be demonstrated

For each unit standard there are corresponding performance assessment criteria, which describe the evidence an assessor should use to determine a learner's competence.

Integrated assessment methods and tools for this qualification must allow the learner to demonstrate that he/she has acquired the prescribed knowledge of and can safely and efficiently apply the required competence in the relevant aspects of Dry Lumber Processing, as described in paragraph 6 Purpose of this qualification, and paragraph 8, Exit-level outcomes

These tools are written or oral tests to determine level of knowledge and on-the-job observation to determine applied competence, as summative assessment, for all the exit level outcomes at the completion of the learning programme.

The tools that can be used for formative assessment during and at the completion of the learning programme for each of the exit level outcomes, are oral testing, on the-job-observation, role-play situations and structured classroom discussions. The assessor/s can decide which method will be the most appropriate in the particular situation where the assessment is taking place

A portfolio of evidence of the outcomes of all these assessments for each learner must be built up for record purposes.

This portfolio may also include, inter alia

Written statements from e.g. current or previous employer, colleagues, peers, managers, i.e. persons who can supply relevant references

Relevant awards or certificates

Previous assessment records

Journals/logbook, records of work performance

The currently unemployed who followed a learning programme to achieve this qualification, as well as persons seeking recognition of prior learning, can be assessed in the same way

RECOGNITION OF PRIOR LEARNING

This qualification may be achieved in part or in whole by recognition of prior learning. The candidate in this case must be evaluated/assessed in the same manner as described in paragraph 10 above

ARTICULATION POSSIBILITIES

The choice of elective learning components allows the learner to change to another pathway in lumber milling at the same level, or at the next higher level.

The fundamental and non-industry specific core learning components will equip the learner with credits which will be useful in other fields of learning that the learner might wish to change to at any future stage.

MODERATION OPTIONS

All providers offering the learning to achieve this qualification, must be registered with the ETQA division of FIETA.

All assessor/s must be registered with the ETQA division of FIETA, and must comply with the requirement for assessors as prescribed by this SETA. In addition, the assessor/s must at least have knowledge and skills levels in this field equivalent to those required by the NQF at Level 4, plus two years of practice in this field as a worker or expert consultant or provider. All moderators moderating the assessment of learners for this qualification, must be registered with the ETQA Division of FIETA.

NOTES

The Unit Standards for the "Fundamental" and those marked with asterisks in the "Core" component of learning in the qualification matrix will have to be drawn from other organizing fields, or will have to be developed.

QUALIFICATION MATRIX FOR: National Certificate in Dry Lumber Processing NQF Level 2

LEVEL 2	FUNDAMENTAL	CREDIT	CORE	CREDIT	ELECTIVES	CREDIT
	Literacy and Communication Skills	20	Demonstrate understanding of the different parts of a tree	5	Demonstrate understanding of the relevant details of special maths for lumber milling	16
	Mathematical literacy	16	Perform basic maintenance and lubrication PLUS one or more of the following	10	Follow procedures to assist to set up green timber processing facilities- wet mill	15
			LUMBER GRADING OPTION Demonstrate understanding of specific details of lumber grading process	20	Demonstrate understanding of specific details of lumber grading	20
			Follow procedures to assist in grading lumber OR	20	Demonstrate understanding of the relevant details of the lumber drying area	15
			DRY MILL CONVERSION OPTION Demonstrate understanding of specific details of dry mill conversion process	20	Demonstrate understanding of details of dry milling process	20
			Follow procedures to assist in carrying out dry mill conversion process OR	20	Follow procedures to assist to set up and operate FJ & Lam equipment	20
			F.J.& LAM OPTION Organise materials for process	10		
			Follow procedures to assist in glue application and operating this equipment	20		
			Follow procedures to assist to set up and operate FJ & Lam equipment	20		
			* Demonstrate understanding of relevant aspects of Labour Relations Act	1		
			* Demonstrate understanding of relevant aspects of Employment Equity Act	1		
			* Demonstrate understanding of relevant aspects of Skills Development Act	1		
			* Demonstrate understanding of relevant aspects of Basic Conditions of Employment Act	1		
			* Demonstrate understanding of relevant aspects of computer literacy	1	at least	30
			* Demonstrate understanding of relevant aspects of business principles	1		
			* Demonstrate understanding of relevant principles of environmental management	1		
			* Demonstrate understanding of relevant aspects of quality management.	1		
TOTAL		36	Lumber grading option Dry Mill Conversion option FJ & Laminating option	63 63 73	Lumber grading option Dry Mill Conversion option FJ & Laminating option	31 31 15
TOTAL	Lumber grading option Dry Mill Conversion option FJ & Laminating option	130 130 124				

DRY LUMBER PROCESSING NQF LEVEL 2**UNIT STANDARDS TITLES AT NQF LEVEL 2**

Industry specific and unit standards available:-

Title 1. Perform basic maintenance and lubrication in dry lumber processing area in lumber mill.

Title 2. Demonstrate understanding of different parts of tree and its stem on cross-section.

Select one of the following options:-

Title 3. Lumber Grading.

- a. Demonstrate understanding of specific details of lumber grading process in lumber mill.
- b. Follow procedures to assist in grading lumber in lumber mill.

Title 4. Dry Mill Conversion.

- a. Demonstrate understanding of specific details of dry mill conversion in lumber mill.
- b. Demonstrate understanding of dry milling activities in lumber mill.

Title 5. Finger-jointing and Laminating

- a. Organise necessary materials used in finger-jointing and laminating facilities of a lumber mill.
- b. Follow procedures to assist in glue application process and operating equipment in finger-jointing and laminating facilities of lumber mill.
- c. Follow procedures to assist to set up and operate finger-jointing and laminating equipment in lumber mill.

And one or more of the following:-

Title 6. Follow procedures to assist to set up green timber processing facilities

Title 7. Demonstrate understanding of specific details of lumber grading (not for lumber grading option)

Title 8. Demonstrate understanding of the basic principles of lumber kiln drying area

Title 9. Demonstrate understanding of details of dry milling process (not for dry mill conversion option)

Title 10. Follow procedures to assist to set up and operate FJ & Lam equipment (not for finger-jointing and laminating option)

Unit standards for the following non- industry specific learning components were not available at the time of the development of this qualification and will have to be sourced from the relevant organizing fields/NSB's.

Title 11. Demonstrate understanding of the aspects of the Occupational Safety Health Act regarding listed work, health and safety reps and committees.

Title 12. Demonstrate understanding of the aspects of the Labour Relations Act regarding general protection and organisational rights, bargaining institutions, resolving disputes, disciplinary and grievance procedures, right to strike and right to lock out.

Title 13. Demonstrate understanding of the relevant aspects of the Employment Equity Act regarding its interpretation and application and prohibition of unfair discrimination.

Title 14. Demonstrate understanding of the relevant aspects of the Skills Development Act regarding workplace skills plan, its purpose, compilation and execution.

Title 15. Demonstrate understanding of the relevant aspects of the Basic Condition of Employment Act regarding principles of the Act, working time, leave and remuneration.

Title 16. Demonstrate understanding of the relevant aspects of Business Principles regarding shareholding, profits and losses.

Title 17. Demonstrate understanding of the relevant aspects of Computer Literacy regarding what is a computer and basic word processing.

Title 18. Demonstrate understanding of the relevant aspects of Environmental Management regarding operational principles and employees' responsibilities.

Title 19. Demonstrate understanding of the relevant aspects of Quality Assurance regarding principles of quality sampling procedures and basic principles of material and product specifications.

Title 20. Demonstrate understanding of relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) c) regarding concept of volume and area measurement, use of measuring tools and

instruments, methods of measuring (mensuration), and concept of shapes.

UNIT STANDARDS TITLES AND SPECIFIC OUTCOMES AT NQF LEVEL 2

1. Title: Perform basic maintenance and lubrication in dry lumber processing area in lumber mill.

Specific Outcome 1.1: Explain the procedures for the basic maintenance and lubrication programme for the facilities in the relevant workplace in the lumber mill.

Specific Outcome 1.2: Describe the cleaning equipment, materials and other aids to be used in the process.

Specific Outcome 1.3: Describe the storage location and inventory proceedings for the maintenance and lubrication materials and tools.

Specific Outcome 1.4: Perform the basic maintenance and lubrication programme as prescribed

2. Title: Demonstrate understanding of different parts of tree and its stem on cross-section.

Specific Outcome 2.1: Identify the main parts of a tree.

Specific Outcome 2.2: Identify those main features of wood visible to the naked eye on the cross section of a tree stem.

Specific Outcome 2.3: Identify the special growth features of wood that usually affect dried quality of wood.

Specific Outcome 2.4: Explain the basic differences between hardwoods and softwoods

3. Title: Demonstrate understanding of specific details of lumber grading process in lumber mill.

Specific Outcome 3.1: Explain the relevant visual grading rules and specifications for the appearance grade products that the relevant enterprise produces.

Specific Outcome 3.2: Explain the relevant visual grading rules, and specifications for stress (strength) graded product that this enterprise produces.

Specific Outcome 3.3: Explain the relevant mechanical grading rules and specifications for the various stress (strength) grade products that this enterprise produces.

Specific Outcome 3.4: Explain the relevant grading marks for the various grades of products that are produced, and their respective placements on these products.

4. Title: Follow procedures to assist in grading lumber in lumber mill.

Specific Outcome 4.1: Prepare the relevant grading facilities.

Specific Outcome 4.2: Access, prepare and present the ungraded lumber for the grading process.

Specific Outcome 4.3: Follow procedures to assist to perform the relevant grading task.

Specific Outcome 4.4: Oversee the preparation of the graded lumber for dispatch. (i.e. collection, sorting, parcelling, stamping the grade marks and strapping of parcels of graded lumber).

5. Title: Demonstrate understanding of specific details of dry mill conversion in lumber mill

Specific Outcome 5.1: Explain the purpose and process of rip-sawing to recover narrower and/or thinner products from dried lumber.

Specific Outcome 5.2: Explain the purpose and process of cross-cutting to recover shorter products from dried lumber.

Specific Outcome 5.3: Explain the purpose and process of planning lumber.

Specific Outcome 5.4: Explain the purpose and process of moulding lumber.

Specific Outcome 5.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area.

6. Title: Demonstrate understanding of dry milling activities in lumber mill.

Specific Outcome 6.1: Explain the procedure to identify, access and present material to be processed.

Specific Outcome 6.2: Explain the purpose and process in setting up the relevant production machines / facilities.

Specific Outcome 6.3: Explain the purpose and process of operating the relevant production machine / facility.

Specific Outcome 6.4: Explain the purpose and process of parcelling, marking and preparing consignments of products for dispatch.

Specific Outcome 6.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area.

7. Title: Organise necessary materials used in finger-jointing and laminating facilities of a lumber mill.

Specific Outcome 7.1: Explain the purpose and process of the receipt and storage of adhesives.

Specific Outcome 7.2: Explain the purpose and process of withdrawal of glue components from storage and what the mixing process entails

Specific Outcome 7.3: Explain the purpose and process of delivering glue mixes to designated workstations.

Specific Outcome 7.4: Explain the purpose and process of preparing the relevant glue applicators and spreaders.

Specific Outcome 7.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area

8. Title: Follow procedures to assist in glue application process and operating equipment in finger-jointing and laminating facilities of lumber mill.

Specific Outcome 8.1: Explain the purpose and process of recording the material coming into the Finger Jointing and Laminating processes and directing them to their relevant holding areas.

Specific Outcome 8.2: Explain the purpose and process of the production flow from the first to the last activity in this work area and maintaining a regular flow of material through all these activities / processes.

Specific Outcome 8.3: Explain the purpose and process of the procedures and the setting up of the equipment for production runs.

Specific Outcome 8.4: Explain the purpose and process of the operation of the equipment in this work area.

Specific Outcome 8.5: Explain the purpose and process of the waste disposal facilities in this work area.

Specific Outcome 8.6: Explain the work procedures, safety and health measures and environmental.

9. Title: Follow procedures to assist to set up and operate finger-jointing and laminating equipment in lumber mill.

Specific Outcome 9.1: Explain the purpose and process of feeding finger-joint cutter machine.

Specific Outcome 9.2: Explain the purpose and process of applying glue to finger profiles for necessary coverage to the whole of each intermeshing surface of each finger manually and / or mechanically. and what is meant by correct axail alignment.

Specific Outcome 9.3: Explain the purpose and process of feeding out jointed pieces supported from the press at the correct time and crosscut.

Specific Outcome 9.4: Explain the purpose and process of stacking finger-jointed material for curing

Specific Outcome 9.5: Explain the purpose and process of feeding laminates through glue applicator equipment.

Specific Outcome 9.6: Explain the purpose and process laying up glued laminates in relevant jig for pressing.

Specific Outcome 9.7: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area.

10. Title: Follow procedures to assist to set up green timber processing facilities.

Specific Outcome 10.1: Follow procedures to assist in maintaining a regular / constant flow of materials through all the processing phases in the wet mill.

Specific Outcome 10.2: Follow procedures to assist in setting up green timber processing equipment for production runs in the wet mill.

Specific Outcome 10.3: Follow procedures to assist in operating green timber processing machines/equipment and materials handling equipment in the wet mill.

Specific Outcome 10.4: Follow procedures to assist in the removal and disposal of wood waste in the prescribed manner, place and time in the wet mill.

11. Title: Demonstrate understanding of specific details of lumber grading (not for lumber grading option).

Specific Outcome 11.1: Explain the relevant visual grading rules and specifications for the appearance grade products that the relevant enterprise produces.

Specific Outcome 11.2: Explain the relevant visual grading rules, and specifications for stress (strength) graded product that this enterprise produces.

Specific Outcome 11.3: Explain the relevant mechanical grading rules and specifications for the various stress (strength) grade products that this enterprise produces.

Specific Outcome 11.4: Explain the relevant grading marks for the various grades of products that are produced, and their respective placements on these products.

12. Title: Demonstrate understanding of the basic principles of the lumber kiln drying area

Specific Outcome 12.1: Explain the basic factors that must be taken into consideration in a kiln drying schedule

Specific Outcome 12.2: Explain types of kiln drying schedules

Specific Outcome 12.3: Describe the stages of a kiln drying schedule

Specific Outcome 12.4: Explain the process of determining drying rate and end point of drying cycle

13. Title: Demonstrate understanding of details of dry milling process (not for dry mill conversion option)

Specific Outcome 13.1: Explain the purpose and process of rip-sawing to recover narrower and/or thinner products from dried lumber.

Specific Outcome 13.2: Explain the purpose and process of cross-cutting to recover shorter products from dried lumber.

Specific Outcome 13.3: Explain the purpose and process of planing lumber.

Specific Outcome 13.4: Explain the purpose and process of moulding lumber.

Specific Outcome 13.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area.

14. Title: Follow procedures to assist to set up and operate FJ & Lam equipment (not for finger-jointing and laminating option)

Specific Outcome 14.1: Explain the purpose and process of feeding finger-joint cutter machine.

Specific Outcome 14.2: Explain the purpose and process of applying glue to finger profiles for necessary coverage to the whole of each intermeshing surface of each finger manually and / or mechanically and what is meant by correct axial alignment

Specific Outcome 14.3: Explain the purpose and process of feeding out jointed pieces supported from the press at the correct time and crosscut

Specific Outcome 14.4: Explain the purpose and process of stacking finger-jointed material for curing

Specific Outcome 14.5: Explain the purpose and process of feeding laminates through glue applicator equipment.

Specific Outcome 14.6: Explain the purpose and process laying up glued laminates in relevant jig for pressing.

Specific Outcome 14.7: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area.

NATIONAL CERTIFICATE IN DRY LUMBER PROCESSING NQF LEVEL 3

Field:	Agriculture and Nature Conservation
Sub-field:	Forestry and Wood Technology
Level:	3
Credit:	134 for Lumber Grading or 144 for Dry Mill Conversion or 142 for Finger Jointing and Laminating

RATIONALE FOR THE QUALIFICATION

NOTE: Dry Lumber Processing includes Lumber Grading, Dry Mill Conversion and Finger Jointing and Laminating. The learner has the option of at least one of these for a learnership programme, certain aspects of the other two then becoming electives. The Lumber Grading process is an evaluation process. It usually produces products of different strength and/or appearance grades. In the Dry Mill Conversion process, dried lumber is sawn to narrower and/or thinner products. These products can also be planed and /or moulded. The Finger Jointing and Laminating activity produces longer, thicker and wider products through a process of jointing and glueing.

The typical range of learners is the currently employed, unemployed and other persons, who want to enter a learning programme to obtain a National Certificate in Wood Technology: Lumber Milling (Dry Lumber Processing) at NQF Level 3, to continue building a career path in this industry. These learners, once qualified, will be able to effectively and efficiently work as assistant operators and team leaders, on tasks they are responsible for at this level in the relevant workplace, in the dry lumber processing area.

South African lumber millers are facing an increasing demand for better quality products at more competitive prices. This is leading to an increased demand for more knowledgeable and better skilled personnel to produce such products. Historically this industry experienced various forms of protection. Lumber mill personnel at the lower levels were only exposed to unplanned, periodic, ad-hoc learning programmes, which did not establish an appropriately trained workforce. All protection has now been removed. This industry is now part of the global market, and it must be competitive in price and quality to survive. It can only achieve this through improved knowledge and skills levels. The new education and training dispensation can deliver this. Therefore a demand, which will increase in the future.

This qualification equips learners with identified competencies in knowledge and skills at NQF Level 3 and it provides a basis for further learning at NQF level 4. The exit level outcomes, which embody these competencies in knowledge and skills are listed in paragraph 8 below. The fundamental outcomes as well as the non-industry specific core outcomes required at this level, also provide the learner with building blocks for a learning pathway outside this industry. The choice of electives allows the learner the option of continuing his/her learning in any of four other areas in the lumber milling field.

The learning programme, which leads to this qualification, produces a person who is knowledgeable about and appropriately skilled in performing the relevant tasks in the dry lumber processing area. Persons without any training or with another type of training, or persons who had undergone the ad-hoc type of training which was prevalent under the previous dispensation, will not be of the same quality for this work than a learner with this qualification.

Improved levels of knowledge and skills lead to greater ability to produce at more competitive costs and better quality, increased sales, greater profits, more personal income, which will impact favourably both on the society and the economy of the country.

PURPOSE OF QUALIFICATION

A learner acquiring this qualification will be able to perform the functions/duties/responsibilities of the person responsible for the production tasks in dry lumber processing, demonstrating the knowledge and skills competencies levels prescribed in the unit standards for NQF Level 3 in this field.

He/she will be able to perform the relevant tasks in this workplace to the prescribed standards, while correctly following the prescribed work procedures, and the health and safety and environmental protection measures applicable to the dry lumber processing area.

The learner will be able to interpret and comply with the prescribed aspects of the relevant legislation impacting on his/her work situation.

He/she will be able to explain the aspects of Business Principles, Computer Literacy and Quality Assurance that are prescribed for this level in dry lumber processing, and use the skills these offer him/her where relevant.

This learner will be able to describe the structure of wood and how this relates to its appearance, strength and water holding properties.

This qualification provides the qualifying learner with legal proof of having achieved the prescribed levels of knowledge and practical competence, where up till the present time, this only existed for tertiary educated persons.

The learning programme that leads to this qualification improves the operating ability and therefore the earning ability of the qualifier, which must contribute to the social and economic development of the country.

This qualification qualifies a person who has successfully demonstrated his/her knowledge levels and competence in the skills prescribed for Wood Technology: Lumber Milling (Dry Lumber Processing) for NQF Level 3, to enroll for an NQF Level 4 Learnership and Qualification in this domain. It ensures another step on a structured career path for the learner. This Qualification forms part of the Learnership in Wood Technology: Lumber Milling (Dry Lumber processing) (NQF Level 3), which, together with three other qualifications at this level, constitute the third tier or level of the NQF framework for the Lumber Milling Industry.

It facilitates access to and mobility within learning pathways in Lumber Milling and other Wood Technology learning pathways. This qualification supports the National Qualifications Framework regarding access, mobility and progression, quality of learning, redress of unfair discrimination and contribution to personal development and social and economic development of the nation

ACCESS TO QUALIFICATION

There is open access to this qualification. This Qualification is achievable by any person who can demonstrate the knowledge and skills levels, required by the fundamental, core and elective unit standards on which this qualifications is based. Prospective learners do however have to note that certain tasks will be physically demanding.

LEARNING ASSUMED TO BE IN PLACE

It will be assumed that a learner who registers for this qualification, will have successfully mastered the following outcomes:

(Fundamental learning)

Communicate orally and in writing to standards equivalent to NQF Level 2 requirements.
Exhibit mathematical skills equivalent to NQF Level 2 requirements.

(Core learning)

Demonstrate understanding of the different parts of a tree and its stem on cross-section.
Perform basic maintenance and lubrication in the relevant workplace.

PLUS

Lumber Grading Option

Demonstrate understanding of the specific details of the lumber grading process.
Follow procedures to assist in grading lumber in the lumber mill.

OR

Dry Mill Conversion Option

Demonstrate understanding of specific details of dry mill conversion process.
Follow procedures to assist in carrying out the dry milling processes in lumber mill.

OR

Finger Jointing and Laminating option

Organise necessary materials for FJ & Lam process in lumber mill.
Follow procedures to assist in glue application process and operate gluing application equipment in lumber mill.
Follow procedures to assist to set up and operate FJ & Lam equipment in lumber mill.

AND

Perform all these tasks according to the work procedures of the enterprise, and subject to the relevant safety and health prescriptions and the applicable environmental management principles.
Demonstrate understanding of the aspects of the OSH Act regarding listed work, health and safety reps and committees.
Demonstrate understanding of the aspects of the LRA regarding general protection and organisational rights, bargaining institutions, resolving disputes, disciplinary and grievance procedures, right to strike and right to lock out.
Demonstrate understanding of the relevant aspects of the Employment Equity Act regarding its interpretation and application and prohibition of unfair discrimination.
Demonstrate understanding of the relevant aspects of the Skills Development Act regarding workplace skills plan, its purpose, compilation and execution.
Demonstrate understanding of the relevant aspects of the Basic Conditions of Employment Act regarding principles of the Act, working time, leave and remuneration.
Demonstrate understanding of the relevant aspects of Business Principles regarding shareholding, profits and losses.
Demonstrate understanding of the relevant aspects of Computer Literacy regarding what is a computer and basic word processing.
Demonstrate understanding of the relevant aspects of Environmental Management regarding operational principles and employees' responsibilities.
Demonstrate understanding of the relevant aspects of Quality Assurance regarding principles of quality sampling procedures and basic principles of material and product specifications.

(Elective Learning)

Demonstrate understanding of the specific details of setting up certain wet mill production facilities, and/or relevant details of lumber drying, and/or specifics of lumber grading process, and/or of dry mill conversion process, and/or assisting to set up and operate finger jointing and laminating facilities.

Demonstrate understanding of relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) (c) regarding concept of volume and area measurement, use of measuring tools and instruments, methods of measuring (mensuration), and concept of shapes.

(Crossfield Outcomes)

Evaluate status of reported problems, report orally or in writing to relevant person/s, lead work team in workplace, assist to carry out production programme, collating and analysing data, communicate effectively with all relevant persons and oversee the care and storage of tools and instruments used in the workplace.

EXIT LEVEL OUTCOMES

The qualifying learner can:

Outcome 1

Describe and perform the functions/duties/responsibilities required of the person responsible for the production tasks in dry lumber processing, demonstrating the knowledge and skills competencies levels prescribed in the unit standards for NQF Level 3 in this field.

Associated assessment criteria

The learner's description demonstrates a knowledge and understanding of the functions/duties/responsibilities required of the person responsible for the production tasks in dry lumber processing, which complies with the requirements prescribed for NQF Level 3

The relevant tasks are performed as prescribed

The learner communicates effectively with the responsible person/s and other workers in his/her work situation and gives the necessary guidance required of his position in the prescribed manner

The learner gives the prescribed quality of leadership to the work team he/she must lead in his/her work situation

This learner's contribution to the relevant production activity assures that the required delivery/production rate is maintained

Reported problems in the relevant production activities or workplace are solved and the necessary decisions made in the prescribed manner

Workers in the learner's area of authority in the dry lumber processing area are motivated, guided and trained in the relevant production activities in the prescribed manner

Outcome 2

Demonstrate the level of knowledge and understanding required at NQF level 3, of the prescribed work procedures, the safety and health and environmental protection measures in dry lumber processing, by describing and performing these correctly

Associated assessment criteria

The learner's description demonstrates a knowledge and understanding of the work procedures, safety and health, and environmental protection measures, which complies with the prescriptions for the NQF Level 3 in dry lumber processing

The procedures prescribed for the relevant tasks regarding the work activity, safety and health and environmental protection measures, are applied correctly

The learner's correct guidance and motivation of the workers in the performance of these activities ensures the execution of the relevant tasks as prescribed

The learner achieves the required co-operation successfully as a leader in his/her area of authority in the dry lumber processing area

His/her instructions are understood and executed as prescribed

Outcome 3

Interpret, explain verbally or in writing, and comply with the prescribed aspects of legislation for NQF Level 3, that impacts on his/her work situation, relating to the OSH Act, the Labour Relations Act, the Skills Development Act, the Employment Equity Act, and the Basic Conditions of Employment Act

Associated assessment criteria

The learner's explanation of the prescribed aspects of the relevant legislation proves that he/she has the level of knowledge and understanding of these aspects as required at NQF Level 3 for dry lumber processing

The prescribed aspects of the relevant legislation are interpreted and explained correctly

The explanation is given in a structured and understandable manner of a standard required at this level

The correct legal terminology is used in the explanation

The learner in his/her work situation correctly complies where relevant, with the prescribed aspects of the relevant legislation

Outcome 4

Demonstrate the level of knowledge and understanding required at NQF level 3, by explaining correctly and clearly the relevant aspects of running a business (Business Principles)

Associated assessment criteria

The required level of knowledge and understanding is proven by the correct verbal or written explanation

The explanation is given in a structured and understandable manner of a standard required at this level

The correct terminology is used in the explanation

Outcome 5

Demonstrate the level of knowledge and understanding required at this level, regarding computer software packages relevant to lumber milling and their use, by explaining correctly the technology involved and correctly applying these programmes

Associated assessment criteria

The required level of knowledge and understanding is proven by the correct verbal or written explanation

The explanation is given in a structured and understandable manner of a standard required at this level

The correct terminology is used in the explanation

The relevant software programmes are operated with the prescribed level of skill

Outcome 6

Demonstrate the level of knowledge and understanding required at NQF level 3, of quality control and assurance in the dry lumber processing area, by correctly explaining the procedures and applying these with the prescribed level of skill.

Associated assessment criteria

The required level of knowledge and understanding is proven by the correct verbal or written explanation

The explanation is given in a structured and understandable manner of a standard required at this level

The correct terminology is used in the explanation

The procedures for quality control and assurance in dry lumber processing are performed in a manner which ensures the achievement of the prescribed outcomes

Outcome 7

Demonstrate the knowledge and understanding required at NQF level 3, of the relevant details of the material being processed, by correctly describing the structure of wood and how this relates to its appearance, strength and water holding properties.

Associated assessment criteria

The required level of knowledge and understanding of wood as a raw material, is proven by the correct verbal or written explanation of its structure and how this relates to its appearance, strength and water holding properties

The details regarding the structure of wood and how this relates to the relevant properties, are described correctly

The explanation is given in a structured and understandable manner of a standard required at this level

The correct wood technological terminology is used in the explanation

Every one of these exit level outcomes, except outcome 4 which relates to Business Principles, will be developed further in the learning programme for NQF Level 4 Lumber Milling: Dry Lumber Processing, in order to comply with the knowledge and skills levels required at that level.

The successful achievement of all of the above exit level outcomes, is therefor a requirement for those learners who wish to continue their learning in this field at NQF Level 4.

Any learner who does not want to complete this qualification, can exit the learning programme after achieving outcomes 1 and 2, in order to accumulate credits for example for further learning in related learning pathways in lumber milling, or for other fields related to Wood Technology.

INTERNATIONAL COMPARABILITY

Information gained from visits to and from
The British Columbia Institute for Technology, Vancouver Canada
The community college at Ashville in North Caroline, U.S.A
The Forestry Training Centre at Rotorua, New Zealand
The Technical and Further Education (TAFE) training institute in Mt Gambier Australia
influenced the thinking on this and other Wood Technology qualifications.

Qualifications from those institutions and these are not exactly the same but learning programmes and hours of learning are comparable. The inclusion of labour legislation and other non-industry specific subjects make it even more uniquely South African.

The institutions listed above are all internationally recognized as centres of excellence in training and education in the Forestry/Wood Technology field.

INTEGRATED ASSESSMENT

The unit standards on which this qualification is based, describe the competent performance in Dry Lumber Processing, and lay down the criteria by which competence should be judged, as well as the range of circumstances in which competence should be demonstrated

For each unit standard there are corresponding performance assessment criteria, which describe the evidence an assessor should use to determine a learner's competence.

Integrated assessment methods and tools for this qualification must allow the learner to demonstrate that he/she has acquired the prescribed knowledge of and can safely and efficiently apply the required competence in the relevant aspects of Dry Lumber Processing, as described in paragraph 6 (Purpose of this qualification) and paragraph 8 (Exit-level outcomes).

These tools are written or oral tests to determine level of knowledge and on-the-job observation, to determine applied competence, as summative assessment, for all the exit level outcomes at the completion of the learning programme.

The tools that can be used for formative assessment during and at the completion of the learning programme for each of the exit level outcomes, are oral testing, on-the-job-observation, role-play situations and structured classroom discussions. The assessor/s can decide which method will be the most appropriate in the particular situation where the assessment is taking place.

A portfolio of evidence of the outcomes of all these assessments for each learner must be built up for record purposes.

This portfolio may also include, inter alia

Written statements from e.g. current or previous employer, colleagues, peers, managers, i.e. persons who can supply relevant references

Relevant awards or certificates
Previous assessment records
Journals/logbook, records of work performance

The currently unemployed who followed a learning programme to achieve this qualification, as well as persons seeking recognition of prior learning, can be assessed in the same way

RECOGNITION OF PRIOR LEARNING

This qualification may be achieved in part or in whole by recognition of prior learning. The candidate in this case must be evaluated/assessed in the same manner as described in paragraph 10 above.

ARTICULATION POSSIBILITIES

The choice of elective learning components allows the learner to change to another pathway in lumber milling at the same level, or at the next higher level.

The fundamental and non-industry specific core learning components will equip the learner with credits which will be useful in other fields of learning that the learner might wish to change to at any future stage.

MODERATION OPTIONS

All providers offering the learning to achieve this qualification, must be registered with the ETQA division of FIETA.

All assessor/s must be registered with the ETQA division of FIETA, and must comply with the requirement for assessors as prescribed by this SETA. In addition the assessor/s must at least have the knowledge and skills levels in this field equivalent to those required by the NQF at Level 4, plus two years of practice in this field as a worker or expert consultant or provider. All moderators moderating the assessment of learners for this qualification, must be registered with the ETQA Division of FIETA.

NOTES

The Unit Standards for the "Fundamental" and those marked with asterisks in the "Core" component of learning in the qualification matrix will have to be drawn from other organising fields, or will have to be developed.

QUALIFICATION MATRIX FOR: National Certificate In Dry Lumber Processing NQF Level 3

LEVEL 3	FUNDAMENTAL	CREDIT	CORE	CREDIT	ELECTIVES	CREDIT
	Literacy and Communication Skills	20	Demonstrate understanding of structure of wood and how it relates to its strength, appearance and water holding	15	Demonstrate understanding of relevant aspects of Lumber Milling maths	16
	Mathematical literacy	16	Control basic maintenance and lubrication	15	Set up and operate Primary breakdown Secondary breakdown	10 10
			PLUS			
			LUMBER GRADING OPTION Control lumber grading	20	Control lumber grading	20
			Set up and operate conversion equipment for thinner/narrower products	15	Set up and operate conversion equipment in dry mill	20
			Set up and operate conversion equipment for shorter lengths OR	15	Produce FJ & Laminated lumber	20
			DRY LUMBER CONVERSION OPTION Set up and operate conversion equipment for thinner and narrower products	15		
			Set up and operate conversion equipment for shorter products	15		
			Set up and operate conversion equipment for surfacing and thicknessing	15		
			Set up and operate conversion equipment for profiling/moulding OR	15		
			FJ & LAM OPTION Manage receipt etc of glue	15		
			Manage receipt etc of lumber	15		
			Produce FJ lumber	10		
			Produce Lam lumber	10		
			Process FJ & Lam	8		
			PLUS			
			* Demonstrate understanding of relevant aspects of Labour Relations Act	1		
			* Demonstrate understanding of relevant aspects of Employment Equity Act	1		

			* Demonstrate understanding of relevant aspects of Skills Development Act	1		
			* Demonstrate understanding of relevant aspects of Basic Conditions of Employment Act	1		
			* Demonstrate understanding of relevant aspects of computer literacy	1		
			* Demonstrate understanding of relevant aspects of business principles	1		
			* Demonstrate understanding of relevant principles of environmental management	1		
			* Demonstrate understanding of relevant aspects of quality management	1		
TOTAL		36	Lumber grading option	88	Lumber grading option	10
			Dry Mill Conversion option	98	Dry Mill Conversion option	10
			FJ & Laminating option	96	FJ & Laminating option	10
TOTAL	Lumber grading option	134				
	Dry Mill Conversion option	144				
	FJ & Laminating option	142				

DRY LUMBER PROCESSING NQF LEVEL 3**UNIT STANDARDS TITLES AT NQF LEVEL 3**

Industry specific and unit standards available:-

Title 1. Control basic maintenance and lubrication in dry lumber processing area in lumber mill.

Title 2. Demonstrate understanding of structure of wood and how it relates to its appearance, strength and how it holds water.

Select one of the following options:-

Title 3. Lumber Grading

- Control lumber grading in lumber mill.

Title 4. Dry Mill Conversion.

- a. Set up and operate conversion equipment used for recovering narrower and thinner products in dry mill of lumber mill.
- b. Set up and operate conversion equipment used for recovering shorter length products in dry mill of lumber mill.
- c. Set up and operate conversion equipment used for surfacing and thickening products in dry mill of lumber mill.
- d. Set up and operate conversion equipment used to profile cross section of products in dry mill of lumber mill.

Title 5. Finger-Jointing and Laminating.

- a. Manage receipt, storage and mixing of glue components for finger-jointing and laminating in lumber Mill.
- b. Manage receipt and evaluation of lumber for finger-jointing and laminating in lumber mill.
- c. Produce finger-jointed lumber in lumber mill.
- d. Produce laminated lumber in lumber mill.
- e. Process finger-jointed and laminated lumber into products for the markets of lumber mill.

And one or more of the following:-

Title 6. Set up and operate primary log breakdown facilities in green timber processing area of lumber mill.

Title 7. Set up and operate secondary log breakdown facilities in green timber processing area of lumber mill.

Title 8. Control lumber grading (not for lumber grading option).

Title 9. Set up and operate conversion equipment in dry mill (not for dry mill conversion option).

Title 10. Produce FJ & Laminated lumber (not for finger-jointing and laminating option).

Title 11. Produce laminated lumber (not for finger jointing and laminating option).

Unit standards for the following non industry specific learning components were not available at the time of the development of this qualification and will have to be sourced from the relevant organizing fields/NSB's.

Title 12. Demonstrate understanding of the relevant aspects of the Occupational Health and Safety Act regarding employer and employees' responsibilities.

Title 13. Demonstrate understanding of the relevant aspects of the Labour Relations Act regarding Committee for Conciliation and Mediation procedures, unfair dismissal and unfair labour practice.

Title 14. Demonstrate understanding of the relevant aspects of the Employment Equity Act regarding affirmative action procedures, monitoring, enforcement and legal procedure.

Title 15. Demonstrate understanding of the relevant aspects of the Skills Development Act regarding learnerships, learner rights, employer rights, provider rights, contracts.

Title 16. Demonstrate understanding of the relevant aspects of the Basic Conditions of Employment Act regarding employment contract, employment criteria, termination of employment.

Title 17. Demonstrate understanding of the relevant aspects of Business Principles regarding financial management basics, budgeting principles.

Title 18. Demonstrate understanding of the relevant aspects of Computer Literacy regarding software packages and their use.

Title 19. Demonstrate understanding of the relevant aspects of Environmental Management principles.

Title 20. Demonstrate understanding of the relevant aspects of Quality Assurance regarding quality systems, SABS specifications, ISO 9000 principles.

Title 21. Demonstrate understanding of relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) (c) regarding calculations of speed/time, weight/density, fractions and percentages, linear graphs and moving averages .

UNIT STANDARDS TITLES AND SPECIFIC OUTCOMES AT NQF LEVEL 3

1. Title: Control basic maintenance and lubrication in dry lumber processing area in lumber mill.

Specific Outcome 1.1: Demonstrate an understanding of the purpose of, and how to control, the basic maintenance and lubrication programme for the relevant workplace.

Specific Outcome 1.2: Demonstrate an understanding of the functions, the purpose and the methods of application of the basic maintenance and lubrication equipment and materials.

Specific Outcome 1.3: Control the storage facilities and keeping inventory of the basic maintenance and lubrication equipment and materials.

Specific Outcome 1.4: Oversee the basic maintenance and lubrication of the equipment in the relevant workplace.

2. Title: Demonstrate understanding of structure of wood and how it relates to its appearance, strength and how it holds water.

Specific Outcome 2.1: Describe the fine (microscopic) structure of wood, i.e. the "units".

Specific Outcome 2.2: Describe how this relates to the weight (density) and strength of wood.

Specific Outcome 2.3: Explain the influence these units have on the appearance of wood.

Specific Outcome 2.4: Explain how wood holds water.

Specific Outcome 2.5: Explain why and how wood shrinks and swells ("moves").

3. Title: Control lumber grading in lumber mill.

Specific Outcome 3.1: Check that relevant lumber grading facility is prepared.

Specific Outcome 3.2: Check that the products to be graded have been identified, collected and presented at the grading facility.

Specific Outcome 3.3: Control the actual grading process.

Specific Outcome 3.4: Oversee the correct sorting and assembling into parcels of graded lumber with similar dimensions and graders' markings.

Specific Outcome 3.5: Oversee the correct stacking, stamping/marketing and strapping of graded and marked products into prescribed size parcels for dispatch.

4. Title: Set up and operate conversion equipment used for recovering narrower and thinner products in dry mill of lumber mill.

Specific Outcome 4.1: Access and assemble the necessary tools, instruments, equipment and cutting tools required for setting up this conversion equipment.

Specific Outcome 4.2: Install and set up conversion tools / cutting blades / knives to produce thinner and narrower products.

Specific Outcome 4.3: Operate conversion equipment to convert dried lumber into thinner and narrower length products.

Specific Outcome 4.4: Monitor quality of product produced.

Specific Outcome 4.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area.

5. Title: Set up and operate conversion equipment used for recovering shorter length products in dry mill of lumber mill.

Specific Outcome 5.1: Access and assemble the necessary tools, instruments, equipment and cutting tools required for the setting up for the cross-cutting activity.

Specific Outcome 5.2: Install and set up conversion tools / cutting blades / knives to produce shorter products.

Specific Outcome 5.3: Operate conversion equipment to convert dried lumber into shorter length products.

Specific Outcome 5.4: Monitor quality of product produced.

Specific Outcome 5.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area.

6. Title: Set up and operate conversion equipment used for surfacing and thicknessing products in dry mill of lumber mill.

Specific Outcome 6.1: Access and assemble the necessary tools, instruments, equipment and cutting tools required for the setting up this conversion equipment.

Specific Outcome 6.2: Install and set up conversion equipment to produce planed products.

Specific Outcome 6.3: Operate conversion equipment to convert dried lumber into planed products.

Specific Outcome 6.4: Monitor quality of product produced.

Specific Outcome 6.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area.

7. Title: Set up and operate conversion equipment used to profile cross section of products in dry mill of lumber mill.

Specific Outcome 7.1: Access and assemble the necessary tools, instruments, equipment and cutting tools required for the setting up for the profiling activity.

Specific Outcome 7.2: Install and set up conversion tools / cutting blades / knives to produce profile products.

Specific Outcome 7.3: Operate conversion equipment to profile (mould) lumber in its cross-section.

Specific Outcome 7.4: Monitor quality of product produced.

Specific Outcome 7.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area

8. Title Manage receipt, storage and mixing of glue components for finger-jointing and laminating in lumber Mill.

Specific Outcome 8.1: Explain the purpose and process of receiving SABS graded glue components from supplier.

Specific Outcome 8.2: Explain the purpose and process of controlling storage facility conditions for glue components.

Specific Outcome 8.3: Explain the purpose and process of accessing and mixing only approved glue that is within specification.

Specific Outcome 8.4: Explain the purpose and process distributing glue of the correct mix and consistency to the correct destination.

Specific Outcome 8.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area.

9. Title: Manage receipt and evaluation of lumber for finger-jointing and laminating in lumber mill.

Specific Outcome 9.1: Explain the purpose and process of receiving lumber and the recording thereof.

Specific Outcome 9.2: Explain the purpose and evaluation methods for strength characteristics of lumber.

Specific Outcome 9.3: Explain the purpose and process of the evaluation methods for quality characteristics of lumber.

Specific Outcome 9.4: Explain the inspection method for finding defects in the FJ profile area.

Specific Outcome 9.5: Explain the purpose and process for directing Finger Jointed lumber to the right destination.

Specific Outcome 9.6: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area.

10. Title: Produce finger-jointed lumber in lumber mill.

Specific Outcome 10.1: Explain the purpose and process of setting up finger joint cutter machine.

Specific Outcome 10.2: Explain purpose and process of establishing finger joints with the correct profile dimensions.

Specific Outcome 10.3: Explain the purpose and process of sorting only approved lumber to accepted specification.

Specific Outcome 10.4: Explain that the purpose and process of stacking and distributing graded FJ lumber to the correct destination.

Specific Outcome 10.5: Explain the purpose and process of cross cutting, stacking and curing of finger jointed lumber.

Specific Outcome 10.6: Explain the work procedures, safety and health measures and environmental requirements pertaining to the finger jointing and laminating area.

11. Title: Produce laminated lumber in lumber mill.

Specific Outcome 11.1: Explain the purpose and process of applying glue to laminates.

Specific Outcome 11.2: Explain the purpose and process of laminate assembly in the press.

Specific Outcome 11.3: Explain the purpose and process of applying pressure and using a torque wrench.

Specific Outcome 11.4: Explain the purpose and process of applying heat for correct curing.

Specific Outcome 11.5: Explain the purpose and process of releasing pressure and removal of baulks from the press.

Specific Outcome 11.6: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area.

12. Title: Process finger-jointed and laminated lumber into products for the markets of lumber mill.

Specific Outcome 12.1: Explain the purpose and reasons for setting up and operation of the planer/four cutter.

Specific Outcome 12.2: Explain the purpose and process setting up and operation of baulk/beam resaw..

Specific Outcome 12.3: Explain the purpose and process of setting up and operating the baulk/beam cross-cut.

Specific Outcome 12.4: Explain the purpose and process of setting up and operating the beam proof loader.

Specific Outcome 12.5: Explain the purpose and process of maintenance and lubrication of relevant machines.

Specific Outcome 12.6: Explain the purpose and process of monitoring movement of beams or materials to relevant holding areas.

Specific Outcome 12.7: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area.

13. Title: Set up and operate primary log breakdown facilities in green timber processing area of lumber mill.

Specific Outcome 13.1: Collect all the prescribed setting up tools and equipment and log cutting tools (blades, knives) for the individual primary log breakdown and ancillary materials handling equipment.

Specific Outcome 13.2: Set up the primary log breakdown facilities equipment and install the required cutting tools, to prescribed standards, in the prescribed manner.

Specific Outcome 13.3: Operate primary log breakdown equipment in the prescribed manner to convert round logs into wet sawn lumber of prescribed dimensions and standards.

Specific Outcome 13.4: Control the throughput and quality to maintain prescribed standards.

Specific Outcome 13.5: Carry out prescribed routine maintenance and lubrication of log breakdown and ancillary handling equipment.

14. Title: Set up and operate secondary log breakdown facilities in green timber processing area of lumber mill.

Specific Outcome 14.1: Collect all the prescribed setting up tools and equipment and greenlumber cutting tools (blades, knives) for the individual secondary log breakdown and ancillary materials handling equipment.

Specific Outcome 14.2: Set up the secondary log breakdown facilities equipment and install the required cutting tools, to prescribed standards, in the prescribed manner.

Specific Outcome 14.3: Operate secondary log breakdown equipment in the prescribed manner to convert cants etc. into green lumber of prescribed thickness.

Specific Outcome 14.4: Control the throughput and quality to maintain prescribed standards.

Specific Outcome 14.5: Carry out prescribed routine maintenance and lubrication of secondary log breakdown and ancillary handling equipment.

15. Title: Control lumber grading (not for lumber grading option).

Specific Outcome 15.1: Check that relevant lumber grading facility is prepared.

Specific Outcome 15.2: Check that the products to be graded have been identified, collected and presented at the grading facility.

Specific Outcome 15.3: Control the actual grading process.

Specific Outcome 15.4: Oversee the correct sorting and assembling into parcels of graded lumber with similar dimensions and graders' markings.

Specific Outcome 15.5: Oversee the correct stacking, stamping/marketing and strapping of graded and marked products into prescribed size parcels for dispatch.

16. Title: Set up and operate conversion equipment in dry mill (not for dry mill conversion option).

Specific Outcome 16.1: Access and assemble the necessary tools, instruments, equipment and cutting tools required for setting up this conversion equipment.

Specific Outcome 16.2: Install and set up conversion tools / cutting blades / knives to produce thinner and narrower products.

Specific Outcome 16.3: Operate conversion equipment to convert dried lumber into thinner and narrower length products.

Specific Outcome 16.4: Monitor quality of product produced.

Specific Outcome 16.5: Explain the work procedures, safety and health measures and environmental requirements pertaining to the dry milling area.

17. Title Produce Finger-jointing lumber (not for finger-jointing and laminating option)

Specific Outcome 17.1: Explain the purpose and process of setting up Finger Joint Cutter Machine.

Specific Outcome 17.2: Explain purpose and process of establishing Finger Joints with the correct profile dimensions.

Specific Outcome 17.3: Explain the purpose and process of sorting only approved lumber to accepted specification.

Specific Outcome 17.4: Explain that the purpose and process of stacking and distributing graded FJ lumber to the correct destination.

Specific Outcome 17.5: Explain the purpose and process of cross cutting, stacking and curing of finger jointed lumber.

Specific Outcome 17.6: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area.

18. Title: Produce Laminated lumber (not for finger-jointing and laminating option)

Specific Outcome 18.1: Explain the purpose and process of applying glue to laminates.

Specific Outcome 18.2: Explain the purpose and process of laminate assembly in the press.

Specific Outcome 18.3: Explain the purpose and process of applying pressure and using a torque wrench.

Specific Outcome 18.4: Explain the purpose and process of applying heat for correct curing.

Specific Outcome 18.5: Explain the purpose and process of releasing pressure and removal of baulks from the press.

Specific Outcome 18.6: Explain the work procedures, safety and health measures and environmental requirements pertaining to the Finger Jointing and Laminating area.

No. 269

8 March 2002

NATIONAL CERTIFICATE IN DRY LUMBER PROCESSING NQF LEVEL 4

Field: Agriculture and Nature Conservation.

Sub-field: Forestry and Wood Technology.

Level: 4

Credit: 121 for Lumber Grading or
121 for Dry Mill Conversion or
121 for Finger Jointing and Laminating

RATIONALE FOR THE QUALIFICATION

NOTE: Dry Lumber Processing includes Lumber Grading, Dry Mill Conversion and Finger Jointing and Laminating. The learner has the option of at least one of these for a learnership programme, certain aspects of the other two then becoming electives. The Lumber Grading process is an evaluation process. It usually produces products of different strength and/or appearance grades. In the Dry Mill Conversion process, dried lumber is sawn to narrower and/or thinner products. These products can also be planed and /or moulded. The Finger Jointing and Laminating activity produces longer, thicker and wider products through a process of jointing and glueing. (Processing facilities).

The typical range of learners is the currently employed, unemployed and other persons, who want to enter a learning programme to obtain a National Certificate in Wood Technology: Lumber Milling (Dry Lumber Processing) at NQF Level 4, to continue building a career path in this industry.

These learners, once qualified, will be able to effectively and efficiently work as assistant operators and team leaders, on tasks they are responsible for at this level in the relevant workplace, in the dry lumber processing area.

South African lumber millers are facing an increasing demand for better quality products at more competitive prices. This is leading to an increased demand for more knowledgeable and better skilled personnel to produce such products. Historically this industry experienced various forms of protection. Lumber mill personnel at the lower levels were only exposed to unplanned, periodic, ad-hoc learning programmes, which did not establish an appropriately trained workforce. All protection has now been removed. This industry is now part of the global market, and it must be competitive in price and quality to survive. It can only achieve this through improved knowledge and skills levels. The new education and training dispensation can deliver this. Therefore a demand, which will increase in the future.

This qualification equips learners with identified competencies in knowledge and skills at NQF Level 4 and it provides a basis for further learning at NQF Level 5. The exit level outcomes, which embody these competencies in knowledge and skills are listed in paragraph 8 below. The fundamental outcomes as well as the non-industry specific core outcomes required at this level, also provide the learner with building blocks for a learning pathway outside this industry. The choice of electives allows the learner the option of continuing his/her learning in any of three other areas in the lumber milling field.

The learning programme, which leads to this qualification, produces a person who is knowledgeable about and appropriately skilled in performing the relevant tasks in the dry lumber processing area. Persons without any training or with another type of training, or persons who had undergone the ad-hoc type of training which was prevalent under the previous dispensation, will not be of the same quality for this work than a learner with this qualification.

Improved levels of knowledge and skills lead to greater ability to produce at more competitive costs and better quality, increased sales, greater profits, more personal income, which will impact favourably both on the society and the economy of the country.

PURPOSE OF QUALIFICATION

A learner acquiring this qualification will be able to carry out his/her prescribed responsibilities in a knowledgeable and skillful manner as a supervisor/manager of all the activities that take place in the dry lumber processing area in a lumber mill as prescribed in the unit standards for NQF Level 4 in this field.

He/she will be able to perform the relevant tasks in this workplace to the prescribed standards, while correctly following the prescribed work procedures, and the health and safety and environmental protection measures applicable to the dry lumber processing area for NQF Level 4.

The learner will be able to interpret and comply with the prescribed aspects of the relevant legislation impacting on his/her work situation at this level.

He/she will be able to explain the aspects of Computer Literacy and Quality Assurance that are prescribed for this level in dry lumber processing, and use the skills these offer him/her correctly where relevant.

This learner will be able to describe the influence of the structure of wood, its properties and certain production factors on its final quality.

This qualification provides the qualifying learner with legal proof of having achieved the prescribed levels of knowledge and practical competence, where up till the present time, this only existed for tertiary educated persons.

The learning programme that leads to this qualification improves the operating ability and therefore the earning ability of the qualifier, which must contribute to the social and economic development of the country.

This qualification qualifies a person who has successfully demonstrated his/her knowledge levels and competence in the skills prescribed for Wood Technology: Lumber Milling (Dry Lumber Processing) for NQF Level 4, to enroll for an NQF Level 5 Learnership and Qualification in this domain. It ensures a higher step on a structured career path for the learner. This Qualification forms part of the Learnership in Wood Technology: Lumber Milling (Dry Lumber Processing) (NQF Level 4), which, together with three other qualifications at this level, constitute the fourth tier or level of the NQF framework for the Lumber Milling Industry.

It facilitates access to and mobility within learning pathways in Lumber Milling and other Wood Technology learning pathways.

This qualification supports the National Qualifications Framework regarding access, mobility and progression, quality of learning, redress of unfair discrimination and contribution to personal development and social and economic development of the nation

ACCESS TO QUALIFICATION

There is open access to this qualification. This Qualification is achievable by any person who can demonstrate the knowledge and skills levels, required by the fundamental, core and elective unit standards on which this qualification is based. Prospective learners do however have to note that certain tasks will be physically demanding.

LEARNING ASSUMED TO BE IN PLACE

It will be assumed that a learner who registers for this qualification, will have successfully mastered the following outcomes:

(Fundamental learning)

- Communicate orally and in writing to standards equivalent to NQF Level 3 requirements.
- Exhibit mathematical skills equivalent to NQF Level 3 requirements.

(Core learning)

- Demonstrate understanding of the structure of wood and how it relates to its appearance, strength and how it holds water.
- Control basic maintenance and lubrication in this workplace.

GRADING OPTION

- Control lumber grading in lumber mill.
- Set up and operate conversion equipment for recovering thinner and narrower products in dry mill of lumber mill.
- Set up and operate conversion equipment to recover shorter products in the dry mill of lumber mill.

DRY MILL CONVERSION OPTION

- Set up and operate conversion equipment for narrower and thinner products in the dry mill of lumber mill.
- Set up and operate conversion equipment for shorter products in dry mill of lumber mill.
- Set up and operate conversion equipment for surfacing and thicknessing products in dry mill of lumber mill.
- Set up and operate conversion equipment to profile/mould cross-sections of products in dry mill of lumber mill.

FINGER JOINTING AND LAMINATING OPTION

- Manage receipt, storage and mixing of glues for finger jointing and laminating in lumber mill.
- Manage receipt and evaluation of lumber for finger-jointing and laminating in lumber mill.
- Produce finger-jointed lumber in lumber mill.
- Produce laminated lumber in lumber mill.
- Process finger-jointed and laminated lumber into products for markets of lumber mill.
- Perform all these tasks according to the work procedures of the enterprise, and subject to the relevant safety and health prescriptions and the applicable environmental management principles.

AND

- Demonstrate understanding of the relevant aspects of the OSH Act regarding employer and employees' responsibilities.
- Demonstrate understanding of the relevant aspects of the LRA regarding CCMA procedures, unfair dismissal and unfair labour practice.
- Demonstrate understanding of the relevant aspects of the EEA regarding affirmative action procedures, monitoring, enforcement and legal procedure.
- Demonstrate understanding of the relevant aspects of the SDA regarding learnerships, learner rights, employer rights, provider rights, contracts.
- Demonstrate understanding of the relevant aspects of the BCEA regarding employment contract, employment criteria, termination of employment.
- Demonstrate understanding of the relevant aspects of Business Principles regarding financial management basics, budgeting principles.
- Demonstrate understanding of the relevant aspects of Computer Literacy regarding software packages and their use.

- Demonstrate understanding of the relevant aspects of Environmental Management principles
- Demonstrate understanding of the relevant aspects of Quality Assurance regarding quality systems, SABS specifications, ISO 9000 principles.

(Elective Learning)

- Demonstrate understanding of the relevant details of setting up and operating certain wet mill production facilities, and/or the control of lumber grading, and/or set up and operate dry mill conversion facilities, and/or production of finger jointed and laminated lumber
- Demonstrate understanding of relevant aspects of Special Mathematics for lumber milling (NSB Regs 9. (1) (c) regarding calculations of speed/time, weight/density, fractions and percentages, linear graphs and moving averages.

(Cross-field Outcomes)

- Solve problems and make decisions regarding the activities in the relevant workplace; lead the other workers in this workplace; carry out the production programme; collate and analyse data and report results to relevant person/s; assist in training learners in this workplace; assume full responsibility for all equipment.

EXIT LEVEL OUTCOMES

The qualifying learner can:

Outcome 1

- Describe and carry out his/her prescribed responsibilities in a knowledgeable and skillful manner as a manager of all the activities that take place in the **dry lumber processing area** in a lumber mill, as prescribed in the unit standards for NQF Level 4 in this field.

Associated assessment criteria

- The learner's description demonstrates a knowledge of the management principles applicable to his/her area of authority, which complies with the requirements prescribed for NQF Level 4
- The learner's description is given in a clear and understandable manner
- The learner performs the management of the various aspects that control the operation of the green timber processing area, in the prescribed manner
- The correct interaction of the learner with the people involved in the production activities in his/her area of authority, and his/her decision making and planning ability, ensures that the prescribed production targets of the enterprise are achieved
- The learner ensures that the workers in his/her area of authority, i.e. the **dry lumber processing area**, are motivated, guided and trained in the prescribed manner in the relevant production and related activities.

Outcome 2

- Demonstrate the level of knowledge and understanding required at NQF level 4, of the prescribed work procedures, the safety and health and environmental protection measures in **dry lumber processing**, by describing and performing these correctly

Associated assessment criteria

- The learner's description demonstrates a knowledge and understanding of the work procedures, safety and health, and environmental protection measures, which complies with the prescriptions for the NQF Level 4 in **dry lumber processing**
- The learner's description is given in a clear and understandable manner
- The procedures prescribed for the relevant tasks regarding the work activity, safety and health and environmental protection measures, are applied correctly
- The learner's correct guidance and motivation of the workers in the performance of these activities ensures that the relevant tasks are performed as prescribed

Outcome 3

- Interpret, explain verbally or in writing, and comply with the prescribed aspects of legislation for NQF Level 4, that impacts on his/her work situation, relating to the Labour Relations Act, the Employment Equity Act, and the Basic Conditions of Employment Act

Associated assessment criteria

- The learner's explanation of the prescribed aspects of the relevant legislation proves that he/she has the required level of knowledge and understanding of these aspects
- The prescribed aspects of the relevant legislation are interpreted and explained correctly
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct legal terminology is used in the explanation
- The learner in his/her work situation correctly complies where relevant, with the prescribed aspects of the relevant legislation

Outcome 4

- Demonstrate the level of knowledge and understanding required at this level, regarding computer software packages relevant to lumber milling and their use, by explaining correctly the technology involved and correctly applying these programmes

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The relevant software programmes are operated with the prescribed level of skill

Outcome 5

- Demonstrate the level of knowledge and understanding required at NQF level 4, of quality control and assurance in the **dry lumber processing** area, by correctly explaining the procedures and applying these with the prescribed level of skill.

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The procedures for quality control and assurance in **dry lumber processing** are performed in the correct manner which ensures the achievement of the prescribed outcomes

Outcome 6

- Demonstrate the level of knowledge and understanding required at NQF Level 4, of the application of the prescribed aspects of productivity enhancement in the **dry lumber processing** area, by correctly explaining the procedures, and applying these with the prescribed level of skill

Associated assessment criteria

- The required level of knowledge and understanding is proven by the correct verbal or written explanation
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct terminology is used in the explanation
- The procedures for productivity enhancement in **dry lumber processing** are performed in the correct manner which ensures the achievement of the prescribed outcomes

Outcome 7

- Demonstrate the knowledge and understanding required at NQF level 4, of the relevant details of the material being processed, by correctly describing the influence of the structure of wood, its properties and certain production factors on its quality

Associated assessment criteria

- The required level of knowledge and understanding of wood as a raw material, is proven by the correct verbal or written explanation of the influence of the structure of wood, its properties and certain production factors, on its quality
- The details regarding the influence of the structure of wood, its properties and certain production factors on its quality, are described correctly
- The explanation is given in a structured and understandable manner of a standard required at this level
- The correct wood technological terminology is used in the explanation

Every one of these exit level outcomes will be developed further in the learning programme for NQF Level 5 Lumber Milling: **Dry Lumber Processing**, in order to comply with the knowledge and skills levels required at that level.

The successful achievement of all of the above exit level outcomes, is therefor a requirement for those learners who wish to continue their learning in this field at NQF Level 5.

Any learner who does not want to complete this qualification, can exit the learning programme after achieving outcomes 1 and 2, in order to accumulate credits for example for further learning in related learning pathways in lumber milling, or for other fields related to Wood Technology.

INTERNATIONAL COMPARABILITY

Information gained from visits to and from

- The British Columbia Institute for Technology, Vancouver Canada
 - The community college at Ashville in North Caroline, U.S.A
 - The Forestry Training Centre at Rotorua, New Zealand
 - The Technical and Further Education (TAFE) training institute in Mt Gambier Australia
- influenced the thinking on this and other Wood Technology qualifications.

Qualifications from those institutions and these are not exactly the same but learning programmes and hours of learning are comparable. The inclusion of labour legislation and other non-industry specific subjects make it even more uniquely South African.

The institutions listed above are all internationally recognized as centres of excellence in training and education in the Forestry/Wood Technology field.

INTEGRATED ASSESSMENT

The unit standards on which this qualification is based, describe the competent performance in **Dry Lumber Processing**, and lay down the criteria by which competence should be judged, as well as the range of circumstances in which competence should be demonstrated.

For each unit standard there are corresponding performance assessment criteria, which describe the evidence an assessor should use to determine a learner's competence.

Integrated assessment methods and tools for this qualification must allow the learner to demonstrate that he/she has acquired the prescribed knowledge of and can safely and efficiently apply the required competence in the relevant aspects of **Dry Lumber Processing**, as described in paragraph 6 (Purpose of this qualification), and paragraph 8 (Exit-level outcomes)

These tools are written or oral tests to determine level of knowledge and on-the-job observation, to determine applied competence, as summative assessment, for all the exit level outcomes at the completion of the learning programme.

The tools that can be used for formative assessment during and at the completion of the learning programme for each of the exit level outcomes, are oral testing, on the-job-observation, role-play situations and structured classroom discussions.

The assessor/s can decide which method will be the most appropriate in the particular situation where the assessment is taking place.

A portfolio of evidence of the outcomes of all these assessments for each learner must be built up for record purposes.

This portfolio may also include, inter alia

- Written statements from e.g. current or previous employer, colleagues, peers, managers, i.e. persons who can supply relevant references
- Relevant awards or certificates
- Previous assessment records
- Journals/logbook, records of work performance

The currently unemployed who followed a learning programme to achieve this qualification, as well as persons seeking recognition of prior learning, can be assessed in the same way

RECOGNITION OF PRIOR LEARNING

This qualification may be achieved in part or in whole by recognition of prior learning. The candidate in this case must be evaluated/assessed in the same manner as described in paragraph 10 above.

ARTICULATION POSSIBILITIES

The choice of elective learning components allows the learner to change to another pathway in lumber milling at the same level, or at the next higher level.

The fundamental and non-industry specific core learning components will equip the learner with credits which will be useful in other fields of learning that the learner might wish to change to at any future stage.

MODERATION OPTIONS

All providers offering the learning to achieve this qualification, must be registered with the ETQA division of FIETA.

All assessor/s must be registered with the ETQA division of FIETA, and must comply with the requirement for assessors as prescribed by this SETA. In addition the assessor/s must at least have the knowledge and skills levels in this field equivalent to those required by the NQF at Level 4, plus two years of practice in this field as a worker or expert consultant or provider. All moderators moderating the assessment of learners for this qualification, must be registered with the ETQA Division of FIETA.

NOTES

The Unit Standards for the "Fundamental" and those marked with asterisks in the "Core" component of learning in the qualification matrix will have to be drawn from other organising fields, or will have to be developed.

QUALIFICATION MATRIX FOR: National Certificate In Dry Lumber Processing NQF Level 4

LEVEL 4	FUNDAMENTAL	CREDIT	CORE	CREDIT	ELECTIVES	CREDIT
	Literacy and Communication Skills	20	Demonstrate understanding of influence of wood structures, properties and production factors on its quality	15	Demonstrate understanding of relevant aspects of Lumber Milling maths	16
	Mathematical literacy	16	Manage production in relevant workplace	15	Manage production in green timber processing area	15
			Manage workforce in this workplace	15	Manage production in lumber grading	15
			Manage safety and health in this workplace	15	Manage production in dry mill	15
			* Demonstrate understanding of relevant aspects of Labour Relations Act	1	Manage production in FJ & Laminating	15
			* demonstrate understanding of relevant aspects of Employment Equity Act	1	Demonstrate understanding of principles and application of productivity measures	20
			* Demonstrate understanding of relevant aspects of Basic Conditions of Employment Act	1		
			* Demonstrate understanding of relevant aspects of Environmental management	1		
			* Demonstrate understanding of relevant aspects of Quality management	1		
TOTAL		36	Lumber grading option	65	Lumber grading option	20
			Dry Mill Conversion option	65	Dry Mill Conversion option	20
			FJ & Laminating option	65	FJ & Laminating option	20
TOTAL	Lumber grading option	121				
	Dry Mill Conversion option	121				
	FJ & Laminating option	121				

DRY LUMBER PROCESSING NQF LEVEL 4**UNIT STANDARDS TITLES AT NQF LEVEL 4**

Industry specific and unit standards available:-

- Title 1. Manage production in dry lumber processing area in lumber mill.
- Title 2. Manage workforce in dry lumber processing area in lumber mill.
- Title 3. Manage safety, health and environmental protection in dry lumber processing area in lumber mill.
- Title 4. Demonstrate understanding of influence of wood structures, properties and certain production factors on wood quality.

And one or more of the following:-

- Title 5. Manage production in green timber processing area
- Title 6. Manage production in lumber grading
- Title 7. Manage production in dry mill
- Title 8. Manage production in FJ & Laminating

Unit standards for the following non industry specific learning components were not available at the time of the development of this qualification and will have to be sourced from the relevant organizing fields/NSB's.

- Title 9. Demonstrate understanding of the relevant aspects of the Labour Relations Act regarding negotiations and the South African labour market.
- Title 10. Demonstrate understanding of the relevant aspects of the Employment Equity Act regarding its general provisions.
- Title 11. Demonstrate understanding of the relevant aspects of the Basic Conditions of Employment Act regarding variations in basic conditions.
- Title 12. Demonstrate understanding of the relevant aspects of Computer Literacy regarding networking and systems.
- Title 13. Demonstrate understanding of the relevant aspects of Environmental Management regarding ISO 14 000 and other systems.
- Title 14. Demonstrate understanding of the relevant aspects of Quality Assurance regarding quality audits.
- Title 15. Demonstrate understanding of the principles and application of productivity measures.

UNIT STANDARDS TITLES AND SPECIFIC OUTCOMES AT NQF LEVEL 4**1. Title Manage production in dry lumber processing area in lumber mill.**

Specific Outcome 1.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 1.2: Record the progress of these production runs and quality of output.

Specific Outcome 1.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 1.4: Adapt procedures if necessary, to achieve original output targets

Specific Outcome 1.5: Analyze data on completed production runs to provide information for future improvements.

2. Title Manage workforce in dry lumber processing area in lumber mill.

Specific Outcome 2.1: Lead, communicate with and motivate the personnel employed in the relevant workplace in the lumber mill.

Specific Outcome 2.2: Manage the education and training of personnel.

Specific Outcome 2.3: Apply the relevant disciplinary and grievance procedures.

Specific Outcome 2.4: Keep employment records of personnel involved in the activities of the relevant workplace.

3. Title: Manage safety, health and environmental protection in the dry lumber processing area in lumber mill.

Specific Outcome 3.1: Ensure that the health and safety measures and environment protection procedures prescribed for the relevant workplace are understood and adhered to.

Specific Outcome 3.2: Ensure that these measures and procedures are applied as prescribed to make the workplace safe for workers and free from health hazards, and to prevent environmental contamination.

Specific Outcome 3.3: Train all workers in this workplace in emergency drills, practical first aid application and handling environmental pollution procedures relevant to this workplace.

Specific Outcome 3.4: Ensure that first aid materials and tools and equipment for emergency contingencies, are clearly visible and easily accessible.

Specific Outcome 3.5: Ensure the accurate recording of first aid activities, emergency situations and cases of environmental pollution, indicating reasons for occurrence, remedial actions taken, and results/outcomes.

4. Title: Demonstrate understanding of influence of wood structures, properties and certain production factors on wood quality.

Specific Outcome 4.1: Explain the wood quality requirements generally specified by the main users of wood products.

Specific Outcome 4.2: Describe the effect of wood growth properties on these quality requirements.

Specific Outcome 4.3: Describe the effect of machined wood properties on these quality requirements.

Specific Outcome 4.4: Describe the effect of the drying out process of wood on these quality requirements.

5. Title: Manage production in green timber processing area.

Specific Outcome 5.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 5.2: Record the progress of these production runs and quality of output.

Specific Outcome 5.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 5.4: Adapt procedures if necessary, to achieve original output targets.

Specific Outcome 5.5: Analyze data on completed production runs to provide information for future improvements.

6. Title: Manage production in lumber grading.

Specific Outcome 6.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 6.2: Record the progress of these production runs and quality of output.

Specific Outcome 6.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 6.4: Adapt procedures if necessary, to achieve original output targets.

Specific Outcome 6.5: Analyze data on completed production runs to provide information for future improvements.

7. Title: Manage production in dry mill.

Specific Outcome 7.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 7.2: Record the progress of these production runs and quality of output.

Specific Outcome 7.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 7.4: Adapt procedures if necessary, to achieve original output targets

Specific Outcome 7.5: Analyze data on completed production runs to provide information for future improvements.

8. Title: Manage production in FJ & Laminating.

Specific Outcome 8.1: Plan and initiate production runs in the relevant workplace.

Specific Outcome 8.2: Record the progress of these production runs and quality of output.

Specific Outcome 8.3: Analyze the data on progress and quality of output achieved as compared to the schedule provided by management.

Specific Outcome 8.4: Adapt procedures if necessary, to achieve original output targets.

Specific Outcome 8.5: Analyze data on completed production runs to provide information for future improvements.

No. 270

8 March 2002

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

Sport, Recreation and Fitness

Registered by NSB 02, Arts & Culture, publishes the following qualifications for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purposes of the qualifications, and the titles and specific outcomes of the unit standards upon which qualifications are based. The full qualifications and unit standards can be accessed via the SAQA web-site at www.saqqa.org.za. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, 659 Pienaar street, Brooklyn, Pretoria.

Comment on the unit standards should reach SAQA at the address *below and no later than 01 April 2002*. All correspondence should be marked **Standards Setting – SGB for Sport, Recreation and Fitness** 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 – 482 0907



18 **SAMUEL B.A. ISAACS**
EXECUTIVE OFFICER

National Certificate in Coaching Science

Field : Arts & Culture

Sub-field : Sport

NQF level : 5

Credits : 127

Rationale of the Qualification:

The design and establishment of a coaching certificate qualification must aim to:

- (a) Develop appropriate skills and knowledge required for coaching beginning and intermediate level performers.
- (b) Ensure that coaching practices applied to beginning and intermediate level sport participants adhere to sound principles drawn from sport science.

The role of sport in South Africa continues to grow in social importance. If sport is to become truly accessible for all South Africans, it is essential that coaches of beginning and intermediate level performers receive the best possible education and training in order to encourage young people to participate in sport. If these coaches can be made aware of the unique physical and psychological characteristics of beginning and intermediate level performers, they can promote the concepts of enjoyment and fair play in addition to presenting fitness and skill learning. This scientifically-based integrated approach will increase the levels of participation of South African youth, and thus contribute to a more stable society.

Building a sound basis of sport skills among youth will also have important implications for top-level sport in South Africa. By focusing on the fundamentals of sport and a scientific approach to training, beginners and intermediates will form good habits that will lay the foundation for pursuing higher levels of performance. A well-coordinated approach to coaching education for beginner and intermediate level sport performers will promote the development of sport as a positive force in South African society. It is this context that this qualification is proposed.

Purpose of the Qualification:

A qualifying learner who has achieved this qualification will be able to:

1. Coach **beginning and intermediate sport performers** in one chosen sport of specialisation.
2. Provide sport opportunities to beginning and intermediate sport participants in a manner that will contribute to community development as well as raise the standard of sport in South Africa.
3. Assume job responsibilities as a sport coach in schools, clubs and private institutions.

Learners who complete this qualification will have acquired the qualities of self-confidence and good communication skills. They will be prepared to assume responsibilities for sport development within their sport specialisation, as well as be positioned to further their learning in other aspects of sport and exercise science.

	Level 2	Level 4	Level 5	Total
Fundamental	6	22	10	38
Core	0	0	64	64
Elective	0	0	25	25
Total	6	22	99	127

ACCESS TO THE QUALIFICATION

Open access

LEARNING ASSUMED TO BE IN PLACE

It is assumed that the learner has achieved a FET certificate at Level 4 or has matriculated. There are no learning pre-requisites.

EXIT LEVEL OUTCOMES

On achieving this qualification the learner will be able to:

1. Respond to the unique demands of coaching in the South African sporting context.
2. Design practice sessions that reflect an understanding of the interdependence of fitness and skill development and a sensitivity to the social, emotional and physical changes that occur as players develop from childhood through youth to adulthood.
3. Apply an understanding of sport science in the implementation of developmentally appropriate sport programmes for beginning and intermediate level performers.
4. Communicate effectively with players, colleagues, employers and parents/guardians.
5. Facilitate a programme of prevention, care and management of sport injuries, with special reference to HIV Aids and the impact on player safety of current developments in the equipment and playing surfaces for his/her sport of specialisation.
6. Demonstrate administrative efficiency in implementing local sports programmes.
7. Demonstrate a commitment to the principles of inclusion in all coaching practices, with special reference to girls/women, persons with disabilities, and other individuals from disadvantaged backgrounds.

ASSOCIATED ASSESSMENT CRITERIA

In particular, assessors should look for the following competencies within a single sport code (to be selected by the learner):

The learner must demonstrate an ability to consider a range of options and make decisions about:

1. Implementing a series of effective practice sessions for beginner and intermediate level sport performers in one chosen sport of specialisation.
2. Implementing a series of effective practice sessions for beginner and/or intermediate level sport performers with disabilities in the chosen sport of specialisation.

The learner must demonstrate an understanding of:

1. A philosophy and a code of ethics of coaching.
2. The principles of growth and development for children and adolescents.
3. The application of principles of sport and exercise physiology to conditioning for sport.
4. The principles of motivation in sport.
5. Mental skills training to improve sport performance.
6. Social aspects of sport.
7. Sport pedagogy
8. Organisation and administration of sport
9. Sport Safety and risk management.
10. Principles of inclusion of persons with disabilities in sport.

The learner must demonstrate the ability to:

1. Conduct self in a professional manner.
2. Observe beginner and intermediate performers to identify needs relating to holistic development.
3. Plan instruction to meet identified needs.
4. Utilise principle of effective coaching to deliver and modify practice sessions.
5. Provide coaching support to participants during competitive events/games.
6. Officiate/umpire competitions on the beginning level.
7. Apply knowledge of basic sport science to improve performance.
8. Organise and present a sport event.
9. Reflect on own coaching in order to identify strategies for improvement.
10. Ensure safe participation.
11. Apply basic first aid.

INTERNATIONAL COMPARABILITY

This qualification has been benchmarked against coaching qualifications in Australia, Canada, Great Britain, New Zealand and the United States of America, and shows substantial degree of similarity. The concept of a single qualification that includes fundamental knowledge of sport science and the common principles of effective coaching is common to these qualifications. The addition of applied coaching experience within a specific sport is part of the qualification in Australia.

The mandatory addition of an understanding of inclusion and practical experience in coaching persons with disabilities is unique to South Africa and may be regarded as a reflection of the commitment to equity in the South African Constitution.

INTERGRATED ASSESSMENT

Integrated assessment at the level of this qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions in order to achieve competence in coaching that is grounded in scientific knowledge. Integrated assessment must judge the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the

thinking and decision-making that underpins their demonstrated performance. Some assessment practices will be of a more practical nature while others will be of a more theoretical nature. A broad range of task oriented and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

RECOGNITION OF PRIOR LEARNING

Any learner who believes he/she has all of the competencies identified above should apply for recognition to an accredited service provider of the Certificate in Coaching Science.

ARTICULATION POSSIBILITIES

This qualification has been developed for professional coaches across the sporting industry and it is intended to professionalise coaching and uplift the standards of coaching in South Africa.

Sport Federations can use this qualification for developing coaches and enhancing their scientific knowledge to coaching at entry level and advanced level. This qualification will provide articulation with a range of qualifications in fitness and sport management areas of practice.

Moderation options

- Anyone assessing a learner against any of the unit standards in this qualification must be registered with the relevant ETQA.
- Any institution offering learning that will enable achievement of the unit standard in this qualification or will assess the unit standards in this qualification must be accredited as a provider with the relevant ETQA.
- The criteria for the assessment of the modules associated with actual coaching experience must be approved by the National Federation of the sport of specialization involved and the criteria for successful coaching of persons with disabilities must be approved by Disability Sport South Africa. It is the responsibility of the provider of the qualification to obtain this approval in writing prior to offering these modules.
- Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

Therefore, 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 registration of assessors.

For an applicant to register as an assessor, the applicant needs:

- A minimum of two years practical, relevant occupational experience
- Declared competent in all the outcomes of the National Assessor Unit Standard as stipulated by SAQA.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided. (Portfolio of evidence)
- Meet any other stipulated requirements by the relevant ETQA.

Unit Standards at NQF Level 2

- Title: Operate a Personal computer system (ID 7943)

Unit Standards at NQF Level 4

- Title: Plan & conduct research (ID 8559)
- Title: Analyse and understand social issues (ID 8591)
- Title: Function in a team (ID 8561)
- Title: Demonstrate an understanding of societal values and ethics (ID 8612)
- Title: Demonstrate an understanding of issues affecting people with special needs (ID 8617)

Unit Standards at NQF Level 6

- Title: Apply communication skills in the workplace. (ID 8647)
- Title: Implement policies regarding HIV/Aids in the workplace.
- Title: Accept the roles & responsibilities of a coach.
- Title: Apply the principles of growth & development to coaching.
- Title: Apply principles of sport exercise physiology .
- Title: Apply an understanding of social & psychological aspects of sport.
- Title: Plan practice sessions & teach sport skills.
- Title: Organise and administer sport.
- Title: Provide for safety & risk management in sport, recreation and fitness.
- Title: Include persons with disabilities in sport, recreation or fitness.
- Title: Coach sport to beginner and intermediate level performers: sport specialisation.
- Title: Coach sport to beginner and intermediate level performers with disabilities.

UNIT STANDARDS FOR DIPLOMA IN COACHING SCIENCE**UNIT STANDARDS TITLE AND SPECIFIC OUTCOMES – NQF LEVEL 5****Unit standards titles and specific outcomes at NQF level 5****1. Title: Accept the roles and responsibilities of a coach**

- Specific outcome 1.** Formulate a personal philosophy of coaching that reflects an understanding and respect for sport participants. For example: (Examine the role of a coach in the life of a child. Note the developmental differences in the role of a coach as sport performers become older as well as more skilful. Identify and justify professional standards in coaching, i.e. ethics of coaching.)
- Specific outcome 2.** Identify and implement effective coaching behaviours that impact on the coaching of children and adolescents, specifically at the beginning and intermediate levels. For example: (Discuss the responsibilities of the coach as a model. Discuss the differences between coaching children and coaching adolescents. Determine a process for self-reflection on coaching behaviour. Determine how to implement strategies for effective communication. Implement a self-evaluation strategy to improve personal effectiveness as a coach.)
- Specific outcome 3.** Identify and discuss the impact of the key components and management structures of a selected sport at local, national and international levels. For example: (Describe the provincial, national and international structure of a sport. Describe the relationship between the management structure of a sport and efforts to transform that sport within the South African context. Describe the relationship between the management structure of a sport and efforts to develop that sport within the South African context. Describe the relationship between the management structure and the organisation of provincial and national competitions in that sport.)
- Specific outcome 4.** Outline the development pathway for selection into the provincial and national teams and explain the implication of these pathways for a sport programme. For example: (Describe how coaching beginner and intermediate level performers can impact on the overall development of top-level sport. Design a strategy to involve family, school and community support in the development of strong children's and youth sport programmes.)
- Specific outcome 5.** Compare typical sport employment scenarios for coaches, administrators, technical officials and sport performers. For example: (Describe career options for coaches in a sport. Explain the essential elements of a sport contract. Discuss the legal implications of typical work arrangements of coaches. Discuss situations where coaches may incur liability. Discuss the legal differences between being an employee and an "independent contractor.")
- Specific outcome 5.** Identify the sport science and sports medicine services that are available to provide support for the development of sport expertise. For example: (Define the following: sport scientist, sport dietician, sport psychologist, sports medicine physician, biokineticist, physiotherapist, and sports conditioning specialist. Describe and access sources of sport science and sports medicine expertise.)

2. Title: Apply the principles of growth and development to coaching

- Specific outcome 1. Analyse the phases of physical and motor growth and development and the implications for coaching, content of practice and opportunities for competition. For example: (Describe the physical and motor changes that occur at different stages of maturation and what impact they have on coaching children and adolescents. Outline the ways in which the different physical and motor growth and development phases/stages may influence training and competition programmes.)
- Specific outcome 2. Analyse the phases of social and emotional development and the implications for coaching, content of practice and opportunities for competition. For example: (Describe the behavioural changes that occur at different stages of social and emotional maturation and what impact they have on coaching children and adolescents. Outline the ways in which the different social and emotional phases/stages may influence training and competition programmes.)
- Specific outcome 3. Analyse the phases of cognitive development and the implications for coaching, content of practice and opportunities for competition. For example: (Describe the behavioural changes that occur at different stages of cognitive maturation and what impact they have on coaching children and adolescents. Outline the ways in which the different cognitive development phases/stages may influence training and competition programmes.)
- Specific outcome 4. Integrate the principles of physical, motor, social, emotional and cognitive to produce a plan for children's development within a selected sport. For example: (Identify differences in content and coaching styles as children progress from fundamental movement to modified sport, to sport programmes. Identify how children who "mature early" and who "mature late" can be accommodated in a sport development plan. Describe the optimal structure for primary school sport and physical education.)
- Specific outcome 5. Integrate the principles of physical, motor, social, emotional and cognitive to produce a plan for the development of adolescents within a selected sport. For example: (Identify differences in content and coaching styles as youth progress from their pre-teen to late-teenage years in terms of their sport programmes. Identify how teenagers who "mature early" and who "mature late" can be accommodated in a sport development plan. Describe the optimal structure for high school sport and physical education.)

3. Title: Apply principles of sport and exercise physiology

- Specific outcome 1. Describe the body systems and the physiological factors associated with them that can affect performance. For example: (Analyse the appropriate energy systems that underpin a specific sport. Outline the three energy systems and describe when each is used and the interrelationship of each. Analyse the contribution of each energy system to a specific sport and compare the recovery times of each system. Identify different types of recovery programmes and outline the importance of including recovery techniques in a training programme.)

- Specific outcome 2. Outline and analyse the effects of environmental and physical factors that may influence performance in a specific sport. For example: (Outline and discuss environmental and physical factors that may affect performance in a specific sport. Describe and analyse the possible physiological effect of these factors on athletes in a specific sport.)
- Specific outcome 3. Demonstrate knowledge of the physiological responses to endurance training and various methods of endurance training for improved sport performance. For example: (Describe the different types of endurance training. Identify and demonstrate correct technique for a range of endurance training exercises. Analyse the strength needs of a specific sport and design a general programme of endurance training that is appropriate for that sport.)
- Specific outcome 4. Demonstrate knowledge of the physiological responses to resistance training and various methods of resistance training for improved sport performance. For example: (Describe the different types of purposes of resistance training. Identify and demonstrate correct technique for a range of strength training exercises. Analyse the strength needs of a specific sport and design a general programme of resistance training that is appropriate for that sport.)
- Specific outcome 5. Demonstrate knowledge of the physiological responses to flexibility training and various methods of flexibility training for improved sport performance. For example: (Describe the different types of purposes of flexibility training. Identify and demonstrate correct technique for a range of flexibility exercises. Analyse the strength needs of a specific sport and design a general programme of flexibility training that is appropriate for that sport.)
- Specific outcome 6. Demonstrate knowledge of the physiological responses to speed and power training and various methods of speed and power training for improved sport performance. For example: (Describe the different types of purposes of speed and power training. Identify and demonstrate correct technique for a range of speed and power training exercises. Analyse the strength needs of a specific sport and design a general programme of speed and power training that is appropriate for that sport.)

4. Title: Apply an understanding of social and psychological aspects of sport

- Specific outcome 1. Discuss the role of mental skills development in the context of sport performance. For example: (Identify the mental skills required for successful performance in a specific sport. Identify the coach's role in mental skills training.)
- Specific outcome 2. Apply an understanding of the principles of motivation in sport to coaching behaviours. For example: (Teach a performer how to set short-term and long-term goals and how to evaluate progress toward his/her goals. Identify coaching behaviours that respond to the role of enjoyment as motivation in sport. Identify coaching behaviours that respond to the role of competence as motivation in sport. Identify coaching behaviours that respond to the role of winning as motivation in sport.)
- Specific outcome 3. Implement the strategies of concentration, self-talk and imagery to enhance sport performance. For example: (Describe the underlying psychological principles that explain the effective use of concentration techniques, self-talk and imagery to enhance sport performance. Teach performers techniques to improve their concentration. Teach performers how and when to use self-talk. Teach performers how and when to use imagery.)

- Specific outcome 4. Implement strategies to capitalise on the principles of positive groups dynamics in sport. For example: Discuss the dynamics of leadership in the sport context. Identify and demonstrate techniques to promote group/team cohesion. Identify strategies to identify group and team goals. Implement coaching behaviours that will promote positive feeling of group membership among sport participants.
- Specific outcome 5. Explore the implications of aggressive behaviour on participation in sport. For example: (Describe the relationship between assertive and aggressive behaviour in sport. Describe coaching strategies to deal with "overly aggressive" players. Discuss the relationship between coaches' aggressive behaviour, players' aggressive behaviour and spectators' aggressive behaviour.)
- Specific outcome 6. Identify the sport psychologist's role and special expertise in mental skills preparation of sports performers. For example: (Define "sport psychology." Identify how sport psychology services can be accessed in South Africa.)

5. Title: Plan practice sessions and teach sport skills

- Specific outcome 1. Design progressions for skill learning appropriate to the type(s) of skills and the level of skillfulness of the learner. For example: (Describe how motor skills are learned. Describe the stages of learning. Describe the principles of learning in relation to open and closed skills, self-paced and externally-paced skills, and discrete and continuous skills. Describe the characteristics of skilled performance. Identify the fundamental skills in a specific sport and indicate how they relate to skill development at the top-level.)
- Specific outcome 2. Design practice activities that develop the underlying sensory-perceptual skills/abilities that support skill learning in sport. For example: (Discuss the relationship between skills and underlying sensory-perceptual skills/abilities. Implement a series of tasks that will improve eye-hand and foot-eye coordination. Implement a series of tasks that will improve visual skills/abilities. Implement a series of tasks that will improve vestibular, proprioceptive and balance skills/abilities.)
- Specific outcome 3. Present a series of practice sessions that follow a progression designed to help beginners improve performance in a sport. For example: (Identify when and how to provide demonstrations of skills. Explore the use of mini-games as a learning medium. Explore modifications in rules and equipment to support learning. Determine the most appropriate methods for incorporating the learning of basic rules. Determine the most appropriate coaching methods to use to encourage learning. Deliver the most effective types of feedback to support beginners' efforts. Design practice sessions of appropriate length and frequency to maximise beginners' learning. Officiate/umpire games/competitions.)
- Specific outcome 4. Present a series of practice sessions that follow a progression designed to help intermediate performers improve performance in a sport. For example: (Identify when and how to provide demonstrations of skills. Determine the most appropriate coaching methods to use to encourage learning. Determine the most appropriate methods for incorporating the learning of rules. Deliver the most effective types of feedback to support intermediates' efforts. Design practice sessions of appropriate length and frequency to maximise intermediates' learning. Officiate/umpire games/competitions.)

- Specific outcome 5. Integrate tactical learning with skill learning in the "games sense" approach to sport instruction. For example: (Present target game, net/wall game, batting game and invasion game lessons and implement a problem-solving coaching method with learners. Identify the key beginner level strategic concepts in a sport and design ways of introducing performers to those concepts in a progression. Identify the key beginner level strategic concepts in a sport and design ways of introducing performers to those concepts in a progression.)
- Specific outcome 6. Utilise effective methods for creating and maintaining a positive learning environment, including effective group management techniques. For example: (Demonstrate knowledge of different ways to organise groups for instruction, depending on size of group, available resources, and purpose of practice session. Provide complete coaching plans for a series of practice sessions. Evaluate practice sessions in relation to long-term and short-term skill development objectives.)

6. Title: Organise and administer sport

- Specific outcome 1. Demonstrate organisation and administrative efficiency in implementing a sport programme. For example: (Organise and conduct an effective meeting with participants, parents and supporters before, during and after the season. Keep appropriate minutes of all meetings and file reports on coaching. Use appropriate administrative forms related to physical examination, indemnity, facility scheduling, travel and budgeting.)
- Specific outcome 2. Evaluate the impact of equipment types, sizes, qualities, etc. on sport performance. For example: (Communicate with groundskeepers, etc., regarding care and maintenance of facilities and equipment. Analyse the safety and quality of equipment in selected sports. Plan a budget to replace equipment over a period of time. Determine the most cost-effective way for performers to gain access to proper equipment, clothing and other apparatus needed for their sport.)
- Specific outcome 3. Design a transportation plan for performers who do not have access to their own transportation. For example: (Implement a strategy for shared transportation. Explore options for subsidized transport. Examine options for alternative training venues and different practice schedules that minimise strain on transport systems. Articulate with school sport transport options.)
- Specific outcome 4. Organise and implement an event in a selected sport, including the performance of all related administrative functions from initial planning through to evaluation of the success of the event. For example: (Plan and present a tournament. Plan and present a coaching clinic or training clinic for a sporting federation. Plan and present a fundraising event.)

7. Title: Provide for safety and risk management in sport, recreation and fitness

- Specific outcome 1. Design a risk management and safety promotion plan for a sport, fitness or recreation programme. For example: (Develop guidelines to maximise safety in physical activity. Implement a routine for safety checks on equipment, apparatus, etc. Ensure current first aid training for leaders and coaches who deliver the instruction and development programme. Complete a risk-analysis survey of a sport, fitness or recreation environment, including safety of participants, spectators, coaches, technical officials and support personnel.)
- Specific outcome 2. Promote healthy participation attitudes and behaviours. For example: (Present current information on HIV aids, blood-borne infections, contagious diseases etc., to participants. Implement a plan to deal with problems associated with infectious diseases in the environment.)
- Specific outcome 3. Describe the emergency procedures for dealing with medical injuries. For example: (Demonstrate immediate actions associated with concussion/head injuries, eye injuries, suspected spinal cord injuries, fractures and bleeding. Describe the contents of an adequate first aid kit for a sport. Provide the emergency phone numbers needed to deal with health/medical emergencies. Orient sport participants to routines to following in case of health/medical emergencies.)
- Specific outcome 4. Analyse the factors underlying the most common injuries in a sport, fitness or recreation programme and discuss injury prevention techniques. For example: (Explain the causes of common injuries and means for prevention. Identify the most common over-use injuries. Describe the role of conditioning and proper instruction and proper equipment in the prevention of injuries. Recognise potentially dangerous forms of exercise and provide safe substitute exercises. Describe the role of the referee/umpire in injury prevention. Describe the function of the rules in relation to injuries and injury prevention. Identify those risk factors that are an integral part of a selected physical activity setting. Assess the protective equipment requirements of a selected physical activity setting.)
- Specific outcome 5. Select and integrate appropriate methods of recovery into training sessions as well as the cycles of the training year. For example: (Discuss the contributions of fatigue and stress to risk factors. Recognise and describe the signs of fatigue and stress responses to exercise. Recognise and use appropriate methods to monitor a participant's response to exercise and stress.)

8. Title: Include persons with disabilities in sport recreation or fitness

- Specific outcome 1. Become familiar with the variety of conditions associated with disabilities and the general guidelines for inclusion in sport, recreation or fitness activities. For example: (Describe methods of communication with performers with sensory impairments, e.g. visual impairments and deaf as well as performers with intellectual impairments. Describe methods for assisting performers with ambulatory problems or who use wheelchairs to gain access to sport, recreation and fitness facilities and transportation, etc.)

- Specific outcome 2. Examine the principle of inclusion to determine the types of participation appropriate for persons with disabilities. For example: (Discuss the applicability of separate, parallel and integrated participation in relation to selected types of disabilities. Describe the different kinds of impairments that affect performance in physical activities.)
- Specific outcome 3. Examine the similarities between sport, fitness or recreation for persons with and without disabilities. For example: (Identify what - if any - rule changes are enforced when working with persons with disabilities in selected sports or other physical activities. Identify which activities are offered only for persons with disabilities. Examine the benefits of participation for persons with disabilities.)
- Specific outcome 4. Develop a coaching or training plan for persons with physical disabilities in a selected sport or physical activity, which incorporates skill instruction, conditioning and tactical learning aspects. For example : (Identify what – if any – modifications in skill techniques or physical conditioning aspects of the programme should be made in relation to the characteristics of the physical disability. Identify what – if any – special rules modify the tactical elements of sport performance.)
- Specific outcome 5. Develop a coaching or training plan for persons with sensory disabilities, e.g. visual impairments or deaf, in a selected physical activity, that incorporates skill instruction, conditioning and tactical learning aspects. For example: (Identify what – if any – modifications in skill techniques should be made in relation to the characteristics of the sensory disability. Identify what – if any – special rules modify the tactical elements of sport performance.)
- Specific outcome 6. Develop a coaching or training plan for persons with intellectual impairments in a selected activity, which incorporates skill instruction, conditioning and tactical learning aspects. For example: (Identify what – if any – special rules modify the tactical elements of sport performance. Identify how the pattern of instruction may change according to the nature of intellectual impairment.)
- Specific outcome 7. Demonstrate knowledge of the system that supports sport for persons with disabilities. For example: (Describe the relationships between Disability Sport South Africa (DISSA) and the sport structures in South Africa. Describe the policy of inclusion for a sporting code. Explain the relationship between special schools, "mainstream" schools, the United Schools Sports Association of South Africa (USSASA) and provincial and national organisations that support sport for persons with disabilities.)

9. Title: Coach sport to beginner and intermediate level performers: sport specialisation

- Specific outcome 1. Act in a professional manner in the role of a coach. For example: (Behave in a manner consistent with being a positive role model for children and adolescents. Prepare for all coaching sessions and be prompt and well-organised in the delivery of all coaching services. Use language and mannerisms that show respect for sport participants, technical officials, co-workers, supervisors, parents and spectators, etc.)

- Specific outcome 2. Complete a successful coaching experience with beginner level performers in one sport specialisation. For example: (Observe the performers in order to determine their needs. Establish specific objectives for physical, motor, social, sensory, emotional and cognitive development of these performers. Plan a series of practice sessions and produce session-by-session written coaching plans that will promote the holistic development of these performers. Implement the planned sessions, evaluating success after each session and adjusting plans for subsequent sessions based on that evaluation. Provide coaching support for these performers during a competitive event. Evaluate the overall effectiveness of the coaching experience and make recommendations for further development efforts for the participants.)
- Specific outcome 3. Complete a successful coaching experience with intermediate level performers in one sport specialisation. For example: (Observe the performers in order to determine their needs. Establish specific objectives for physical, motor, social, sensory, emotional and cognitive development of these performers. Plan a series of practice sessions and produce written session-by-session plans that will promote the holistic development of these performers. Implement the planned sessions, evaluating success after each session and adjusting plans for subsequent sessions based on that evaluation. Provide coaching support for these performers during a competitive event. Evaluate the overall effectiveness of the coaching experience and make recommendations for further development efforts for the participants.)
- Specific outcome 4. Incorporate principles of sport science into coaching. For example: (Implement practice sessions that produce improvement in participants' fitness for their sport. Implement practice sessions that teach participants how to use mental skills to improve their performance. Encourage a positive learning atmosphere in coaching sessions. Maximise assertion and minimise aggression among performers.)
- Specific outcome 5. Reflect on one's own coaching performance in terms of the principles of effective coaching. For example: (Keep a personal coaching log that records session-by-session thoughts about coaching. Identify one's own particular coaching strengths and propose ways to capitalise on those strengths. Identify one's own particular coaching weaknesses and propose ways to address improvement.)
- Specific outcome 6. Conduct a successful event. For example: (Run a tournament. Take performers on a tour. Conduct a fund-raising event.)

10. Title: Coach sport to beginner and intermediate level performers with disabilities

- Specific outcome 1. Act in a professional manner in the role of a coach. For example: (Behave in a manner consistent with being a positive role model for children and adolescents. Prepare for all coaching sessions and be prompt and well-organised in the delivery of all coaching services. Use language and mannerisms that show respect for sport participants, technical officials, co-workers, supervisors, parents and spectators, etc.)
- Specific outcome 2. Complete a successful coaching experience with beginner level and/or intermediate level performers in one sport specialisation. For example: (Observe the performers in order to determine their needs. Identify any rule or other technical modifications in the sport specialisation. Establish specific objectives for physical, motor, sensory, social, emotional and cognitive development of these performers. Plan a series of practice sessions and produce session-by-session written coaching plans that will promote the holistic development of these performers. Implement the planned sessions, evaluating success after each session and adjusting plans for subsequent sessions based on that evaluation. Provide coaching support for these performers during a competitive event. Evaluate the overall effectiveness of the coaching experience and make recommendations for further development efforts for the participants.)
- Specific outcome 3. Incorporate principles of sport science into coaching. For example: (Implement practice sessions that produce improvement in participants' fitness for their sport. Implement practice sessions that teach participants how to use mental skills to improve their performance. Encourage a positive learning atmosphere in coaching sessions. Maximise assertion and minimise aggression among performers.)
- Specific outcome 4. Reflect on one's own coaching performance in terms of the principles of effective coaching. For example: (Keep a personal coaching log that records session-by-session thoughts about coaching. Identify one's own particular coaching strengths and propose ways to capitalise on those strengths. Identify one's own particular coaching weaknesses and propose ways to address improvement.)

National Certificate in Coaching Science
127 SAQA credits: NQF 5

Fundamental			Core			Elective		
Unit Standard Title	Level	Credit	Unit Standard Title	Level	Credit	Unit Standard Title	Level	Credit
						Area of specialisation		
1. Operate a PC	2	6	1. Accept the roles & responsibilities of a coach	5	5	NB: Both modules must be completed. 9. A SPECIFIC SPORT code, e.g. Tennis or Hockey or Rugby, etc. (NB: National NF sets criteria for this module, and Provincial monitors completion of work)	5	20
2. Plan & conduct a research project	5	6	2. Apply the principles of growth & development to coaching	5	5			
3. Analyse and understand social issues	5	4	3. Apply principles of sport exercise physiology	5	15			
4. Lead a team	5	4	4. Apply an understanding of social & psychological aspects of sport	5	10			
5. Demonstrate an understanding of societal values & ethics	4	4	5. Planning practice sessions & teaching sport skills	5	10	10. DISABILITY SPORT (DISSA sets criteria for this module and provincial affiliate monitors completion of work)	5	5
6. Analyse external factors influencing people who have special needs	5	4	6. Organise and administer sport	5	5			
7. Apply communication skills in the workplace	5	10	7. Provide for safety & risk management in SRF	5	5			
			8. Include persons with disabilities in SRF\	5	5			
			9. Implement policies on HIV/Aids in the workplace	5	4			
		42			64			25

National Certificate in Fitness

Field : Arts & Culture

Sub-field : Sport

NQF level : 5

Credits : 137

Rationale of the Qualification:

To date, there is no legislative framework to regulate the fitness industry in South Africa, as a result it has posed difficulties to maintain and monitor standards of qualifications being offered by education providers. The SAQA Act, 1995 through the National Qualification framework, has given this industry an opportunity to develop acceptable fitness industry training standards.

These fitness certificate aim to do the following:

- Ensure that fitness practices applied adhere to sound principles drawn from exercise science and safety principles.
- Develop appropriate fitness skills and knowledge required by the broader fitness, sport, and recreation industry.
- Enhance the standards of fitness practitioners, thus giving credibility and respect to the whole industry.
- Align fitness education and training to the international fitness community

Purpose of the Qualification:

A qualifying learner who has achieved this qualification will be able to:

- Design and implement a physical activity programme for apparently healthy individuals, plus screen, assess and monitor health related fitness programmes, without direct supervision.
- Promote and provide safe and effective physical activity participation to meet participant/s fitness requirements. In addition, this qualifying learner will have the knowledge for appropriate referral to other health care providers.
- Further their learning, practice and career within the fitness and/or associated industries and through their own personal growth.

ACCESS TO THE QUALIFICATION

Open Access

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner wishing to enter a programme leading to this qualification will have NQF Level 4 or the equivalent thereof (National Certificate in Sport, Fitness & Recreation Leader NQF Level 4 is not a pre-requisite to this qualification. However, it may share common Unit Standards or Electives with National Certificate in Fitness NQF Level 5)

EXIT LEVEL OUTCOMES

On achieving this qualification, the learner will be able to demonstrate the following outcomes as applicable to apparently healthy* individuals:

1. Demonstrate knowledge of the fitness environment and the context in which physical activity takes place. **
2. Conduct and interpret pre-participation screening for physical activity readiness.
3. Assess, evaluate and monitor health related fitness components.
4. Feedback and refer as it relates to physical activity.
5. Design, demonstrate and lead exercise programmes.
6. Implement, monitor and modify exercise programmes.
7. Motivate and support fitness participants in making activity related and wellness decisions.
8. Demonstrate entrepreneurial, administration and business skills.
9. Project and conduct oneself in a professional manner.

ASSOCIATED ASSESSMENT CRITERIA

In particular assessors should:

Generally ensure that,

1. An understanding of all the elements of fitness, their inter-relatedness and their connection to the external environment is demonstrated.
2. Participant/s risks, needs, and goals are considered and provided for through screening and assessment.
3. Critical reviews of assessments are used to monitor and improve performance.
4. Information is researched and used in planning an exercise programme.
5. Modifications are provided taking into account the needs and abilities of the participant/s.
6. The success of programmes is evaluated through ongoing monitoring of progress against stated objectives.
7. Various elements appropriate to participants needs and goals are considered and used to develop an exercise programme and specific exercise prescription.
8. Various leadership techniques are used which are appropriate for leading or instructing exercise session/s.
9. Various communication techniques are used which are appropriate for interviews, advising or individual exercise instruction.
10. A business and administration system is maintained which meets the expectations of the participant/s and preserves the integrity of records.

Check that the learner demonstrates an ability to consider a range of options and make decisions about:

1. The fitness and health needs of participants
2. The type of exercise/s to be recommended and taught

3. Appropriate follow up, adjustments and or modifications to exercise programme/s

Check that the learner demonstrates an understanding of:

1. The principles of exercise science and how they are applied
2. The various factors which contribute to healthy lifestyle
3. Basic principles and methods of exercise training
4. Clear and empathetic principles of communication

Check that the learner demonstrates the ability to:

1. Critically evaluate the use of, and explore alternatives to methods of exercise taught in any given situation or range of situations.
2. Justify decisions on any aspect of exercise programming
3. Reflect on the appropriateness of decisions made in exercise programming and on modifications that have been recommended from time to time.
4. Critically reflect on any feedback given during or after supervision.
5. Monitor and improve their own performance based on critical reviews and evaluation of their exercise programming, instruction or leadership
6. Monitor and improve their own performance based on critical reviews and evaluation of their organizational methods, administration or business planning

INTERNATIONAL COMPARABILITY

This qualification has been benchmarked against fitness qualification frameworks from New Zealand, Australia and United Kingdom and it has shown a substantial degree of similarity. This qualification is therefore comparable to those mentioned and in some cases exceeds those standards. The scope of practice of the learners that complete this qualification has been determined through referencing in American College of Sport Medicine and American Heart Association's joint position statement. (Areas of Screening, Staffing, Emergency Policies at Health / Fitness Facilities).

INTERGRATED ASSESSMENT

Integrated assessment at the level of this qualification provides opportunity for learners to show that they are able to integrate concepts, ideas and actions in order to achieve competence fitness instruction that is grounded on scientific knowledge. Integrated assessment must judge the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision making that underpins their demonstrated performance. Some assessment practices will be of a more practical nature while others will be more of a theoretical nature.

A broad range of task oriented and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

RECOGNITION OF PRIOR LEARNING

This qualification may be achieved in part or in a whole, through the recognition of prior learning. Any learner who believes he or she has all the competencies identified above should apply for recognition of prior learning from an accredited assessor of the certificate in fitness.

ARTICULATION POSSIBILITIES

This qualification has been developed for professional fitness instructors in the fitness industry and broader communities, and it is intended to uplift the standards of fitness instruction in South Africa. This qualification will provide articulation with a range of qualifications in sport coaching and physical education areas of practice.

MODERATION OPTIONS

- Anyone assessing a learner against any of the unit standards in this qualification must be registered with the relevant ETQA.
- Any institution offering learning that will enable achievement of the unit standard in this qualification or will assess the unit standards in this qualification must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

Therefore, 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 THETA ETQA.

CRITERIA FOR REGISTRATION OF ASSESSORS

For an application to register as an assessor, the applicant needs:

- A minimum of two years practical, relevant occupational experience.
- Declared competent in all the outcomes of the National Assessor Unit Standards as stipulated by SAQA.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (portfolio of evidence).
- Meet any other stipulated requirements by the relevant ETQA.

Unit Standards at NQF Level 2

- Title: Operate a Personal computer system (ID 7943)
- Title: Organise oneself in the workplace (ID 8618)

Unit Standards at NQF Level 4

- Title: Plan & conduct research (ID 8559)
- Title: Function in a team (ID 8561)
- 1. Title: Maintain fitness environment and equipment.
- 2. Title: Operate professionally in a fitness environment.

Unit Standards at NQF Level 5

- Title: Apply communication skills in the workplace (ID 8647)
- Title: Examine social features as pertaining to the workplace (ID 8664)
- Title: Demonstrate an understanding of professional values and ethics (ID 8648)
- Title: Analyse external factors influencing people who have special needs (ID 8570)
- Title: Implement policies regarding HIV/Aids in the workplace
- Title: Monitor and maintain occupational health & safety (ID 7868)

1. Title: Apply principles of sport and exercise physiology.
2. Title: Apply anatomical and biomechanical principles to physical activity.
3. Title: Promote an awareness of nutrition principles.
4. Title: Conduct a screening procedure.
5. Title: Test and evaluate health related fitness.
6. Title: Design exercise programmes.
7. Title: Motivate and encourage participation in physical activity.
8. Title: Utilize wellness concepts for lifestyle change.
9. Title: Apply entrepreneurship to the administration of a sport, recreation or fitness business.
10. Title: Provide for safety and risk management in sport, recreation or fitness.
11. Title: Include persons with disabilities in sport, recreation or fitness.
12. Title: Lead and instruct exercise programmes for individuals and groups.
13. Title: Lead and instruct exercise programmes for individuals and groups to music.

UNIT STANDARDS FOR CERTIFICATE IN FITNESS**UNIT STANDARDS TITLE AND SPECIFIC OUTCOMES – NQF LEVEL 4****Unit standards titles and specific outcomes at NQF level 4****1. Title: Maintain fitness environment and equipment**

- Specific outcome 1. Maintain the safety, hygiene and efficiency of a fitness facility.
- Specific outcome 2. Advise on the principles of fitness equipment servicing and preventative maintenance of fitness equipment.
- Specific outcome 3. Keep records of fitness equipment servicing and maintenance.
- Specific outcome 4. Refer to the relevant service organisation for back up, equipment maintenance and/or service

2. Title: Operate professionally in a fitness environment.

- Specific outcome 1. Explain the concept of fitness and its role in society.
- Specific outcome 2. Discuss the fitness industry in both a national and international context.
- Specific outcome 3. Give details on fitness as a career and be able to make informed career choices
- Specific outcome 4. Explain the concept of the health related multi disciplinary team, the role of each of its members and be able to refer appropriately.
- Specific outcome 5. Describe the purpose, structure and operations of a fitness facility.
- Specific outcome 6. Comply with legal and ethical business practices and adhere to professional codes of conduct.

UNIT STANDARDS FOR CERTIFICATE IN FITNESS**UNIT STANDARDS TITLE AND SPECIFIC OUTCOMES – NQF LEVEL 5****Unit standards titles and specific outcomes at NQF level 5****1. Title: Apply principles of sport and exercise physiology**

- Specific outcome 1. Describe the body systems and the physiological factors associated with them that can affect performance. For example: (Analyse the appropriate energy systems that underpin a specific sport. Outline the three energy systems and describe when each is used and the interrelationship of each. Analyse the contribution of each energy system to a specific sport and compare the recovery times of each system. Identify different types of recovery programmes and outline the importance of including recovery techniques in a training programme.)
- Specific outcome 2. Outline and analyse the effects of environmental and physical factors that may influence performance in a specific sport. For example: (Outline and discuss environmental and physical factors that may affect performance in a specific sport. Describe and analyse the possible physiological effect of these factors on athletes in a specific sport.)
- Specific outcome 3. Demonstrate knowledge of the physiological responses to endurance training and various methods of endurance training for improved sport performance. For example: (Describe the different types of endurance training. Identify and demonstrate correct technique for a range of endurance training exercises. Analyse the strength needs of a specific sport and design a general programme of endurance training that is appropriate for that sport.)
- Specific outcome 4. Demonstrate knowledge of the physiological responses to resistance training and various methods of resistance training for improved sport performance. For example: (Describe the different types of purposes of resistance training. Identify and demonstrate correct technique for a range of strength training exercises. Analyse the strength needs of a specific sport and design a general programme of resistance training that is appropriate for that sport.)
- Specific outcome 5. Demonstrate knowledge of the physiological responses to flexibility training and various methods of flexibility training for improved sport performance. For example: (Describe the different types of purposes of flexibility training. Identify and demonstrate correct technique for a range of flexibility exercises. Analyse the strength needs of a specific sport and design a general programme of flexibility training that is appropriate for that sport.)
- Specific outcome 6. Demonstrate knowledge of the physiological responses to speed and power training and various methods of speed and power training for improved sport performance. For example: (Describe the different types of purposes of speed and power training. Identify and demonstrate correct technique for a range of speed and power training exercises. Analyse the strength needs of a specific sport and design a general programme of speed and power training that is appropriate for that sport.)

2. Title: Apply anatomical and biomechanical principles to physical activity

- Specific outcome 1. Describe anatomical structures and systems of the human body. For example : (Composition of muscles, bones, ligaments, tendons, structures, locations and functions of anatomical systems.)
- Specific outcome 2. Conduct a biomechanical analysis of movement. For example: (Modifying forces and levers to change exercise intensity or increase difficulty.)
- Specific outcome 3. Conduct an anatomical analysis of movement. For example : (Muscles and joints involved in a "push-up".)
- Specific outcome 4. Adapt exercises using biomechanical principles to ensure safety and effective movement. For example : (Changing range of motion or degree of movement.)

3. Title: Promote an awareness of nutrition principles

- Specific outcome 1. Use nutritional principles to advise participants on how to optimize health and enhance performance in physical fitness activities. For example: (Appropriate proportions of the food groups. Use of different food pyramids. Energy needs and expenditure.)
- Specific outcome 2. Identify and correct common myths, fallacies associated with nutrition. For example: (Use of "slimming aids". Weight gain and weight loss and supplementation. Performance aids.)
- Specific outcome 3. Read and interpret food labels. For example: (Compilation of food. Identify chemical additives. Identify fat content of food. Order of ingredients and their values.)
- Specific outcome 4. Design an action plan to optimize nutritional requirements for healthy eating. For example: (Encourage drinking of water. Encourage eating breakfast. Encourage eating frequency. Encourage appropriate food choices.)
- Specific outcome 5. Refer special needs appropriate practitioner. For example: (Identify eating problems and refer to Psychologist or Dietician. Stress management. Chronic health conditions and recommendation to e.g. Dietician, Physician, Naturopath.)
- Specific outcome 6. Advise on the use of health enhancing supplements. For example: (Vitamins and minerals.)

Qualification Matrix for: National Certificate in Fitness
NQF5 – 137 credits

Fundamental	Level 2		Level 4		Level 5		Total
	1. Operate a personal computer system 1. Organise oneself in the workplace	6 3			1. Examine social features as pertaining to the workplace. 2. Apply communication skills in the workplace. 3. Demonstrate an understanding of professional values and ethics. 4. Analyse external factors influencing people who have special needs. 5. Lead a team 6. Plan and conduct research	4 10 4 4 4 6	41
CORE	Level 2		Level 4		Level 5		
			1. Operate professionally in a fitness environment. 2. Maintain fitness environment and equipment.	4 2	1. Apply principles of sport & exercise physiology. 2. Apply anatomical and biomechanical principles to physical activity. 3. Promote an awareness of nutrition principles. 4. Conduct a screening procedure. 5. Test and evaluate health related fitness. 6. Design exercise programmes. 7. Motivate and encourage participation in physical activity. 8. Utilize wellness concepts for lifestyle change. 9. Apply entrepreneurship to the administration of a sport, recreation or fitness business. 10. Provide for safety and risk management in sport, recreation or fitness. 11. Include persons with disabilities in sport, recreation or fitness activities. 12. Implement policies regarding HIV/Aids in the workplace. 13. Monitor and maintain occupational health and safety.	15 15 6 5 4 5 3 4 5 5 4 4	86
Elective	Level 2		Level 4		Level 5		
					1. Lead and instruct exercise programmes for individuals and groups. Or 2. Lead and instruct exercise programmes for individuals and groups to music.	10	10
Total		9		6		122	137

Qualification Matrix for: National Certificate in Coaching Science
NQF5 – 127 credits

Fundamental	Level 2		Level 4	Level 5		Total
	1. Operate a personal computer	6	1. Demonstrate an understanding of societal values and ethics	4	1. Apply communication skills in the workplace. 10 2. Plan and conduct research 6 3. Analyse external factors influencing people who have special needs 4 4. Lead a team 4 5. Analyse and understand social issues 4	38
CORE	Level 2		Level 4	Level 5		
					1. Accept the roles & responsibilities of a coach. 5 2. Apply the principles of growth & development to coaching. 5 3. Apply principles of sport and exercise physiology. 15 4. Apply an understanding of social & psychological aspects of sport. 10 5. Planning practice sessions & teaching sport skills. 10 6. Organise and administer sport. 5 7. Provide for safety & risk management in sport, recreation and fitness. 5 8. Include persons with disabilities in sport, recreation or fitness. 5 9. Implement policies on HIV/Aids in the workplace. 4	64
Elective	Level 2		Level 4	Level 5		
					1. Coach sport to beginner and intermediate level performers: sport specialisation. 20 2. Coach sport to beginner and intermediate level performers with disabilities. 5	25
Total		6		4	113	127

No. 272

8 March 2002

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

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

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purposes of the qualifications, and the titles and specific outcomes of the unit standards upon which qualifications are based. The full qualifications and unit standards 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, 659 Pienaar street, Brooklyn, Pretoria.

Comment on the unit standards should reach SAQA at the address ***below and no later than 01 April 2002***. All correspondence should be marked **Standards Setting – SGB for Manufacturing and Assembly** and addressed to

The Director: Standards Setting and Development

SAQA

Attention: Mr. D Mphuthing

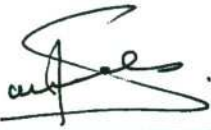
Postnet Suite 248

Private Bag X06

Waterkloof

0145

or faxed to 012 – 482 0907



11 **SAMUEL B.A. ISAACS**
EXECUTIVE OFFICER

National Certificate in First Line Manufacturing Management: Food and Beverage NQF 5

Field:	Manufacturing, Engineering and Technology - NSB 06
Sub-field:	Manufacturing and Assembly
Level:	5
Credit:	120 (143)
Issue date:	
Review date:	

Rationale of the qualification

This qualification reflects the needs of the food and beverage industry for a person with first line manufacturing management skills but with a sound knowledge base and experience within the food and/or beverage manufacturing industry. A generic first line management qualification in the past did not satisfy the needs of this industry. A first line manufacturing management person contextualised within the food and/or beverage manufacturing environment is a need expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the diversity of the food and beverage manufacturing environment. The qualification further provides the flexibility to articulate to other sensitive consumer manufacturing environments such as fast moving consumable products and pharmaceutical and packaging environment.

The level of flexibility within the range of electives will allow the individual to pursue some further specialization within human resources management, food or beverage or packaging technology development.

Purpose of the qualification

A person acquiring this qualification will be able to manage team performance, manage and control manufacturing operations on a manufacturing unit, control a food or beverage quality assurance system and manage and control plant commission, change over and shut down processes in a food or beverage manufacturing environment.

This qualification will contribute to the full development of the learner within the food or beverages manufacturing environment by providing recognition, further mobility and transportability within the field of fast moving consumable products and pharmaceutical and packaging environment.

The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the food and beverage manufacturing environment.

Access to the Qualification

Mathematical and communication skills on NQF 4,
Food or beverage processing knowledge and skills on NQF 3.

Learning assumed to be in place

A knowledge, comprehension and application of language, mathematics, natural science and technology on NQF 4, information technology on NQF 3, personal safety, plant safety, housekeeping and hygiene practices and procedures in the food or beverage manufacturing environment.

Exit level Outcomes

Qualifying learners can:

Exit level 1: Lead a work unit to achieve work unit objectives.

Associated Assessment Criteria

- Communicate in a business environment,
- Manage individual performances and objectives in relationship with the overall team objectives,
- Supervise and lead team individuals by emphasising team objectives within the operations and manufacturing goals,
- Demonstrate an understanding of employment relations within the organisation to facilitate discussion that arise on shop floor level.

Exit level 2: Manage production and manufacturing operations on a food or beverage manufacturing unit.

Associated Assessment Criteria

- Demonstrate an understanding of manufacturing principles and methodologies,
- Oversee cleaning, production and manufacturing operations within a food or beverage manufacturing line or unit,
- Ensure that change overs, start-up and shut down processes are conducted according to standard operating procedures,
- Schedule and plan for recourse used during the production and manufacturing processes.

Exit level 3: Ensure quality control standards are maintained during production.

Associated Assessment Criteria

- Personal, environment and product safety are maintained during the manufacturing of the food or beverage products,
- Ensure good manufacturing practices, hygiene, health and housekeeping practices are applied during production run,
- Verify conformance to quality parameters during production run,

International comparability

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level.

Integrated Assessment

The applied competence (practical, foundational and reflexive competencies) of this qualification will be achieved if a candidate is able to manage team performance, manage and control manufacturing operations on a manufacturing unit, control a food or beverage quality assurance system and manage and control plant commission, change over and shut down processes in a food or beverage manufacturing environment.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment. A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

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.

Articulation possibilities

This qualification will enable the qualifying candidate to progress to learning for other national management diplomas on NQF 6 and national first degrees in management on NQF 7.

This qualification provides entry to qualifications in food and beverage manufacturing supervision, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

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 ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (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 registration of assessors

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of food or beverage manufacturing management.
- A national first degree in food or beverage manufacturing management on NQF level 7 and 6 months field experience,
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body and HET ETQA.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)

National certificate in First Line Manufacturing Management : Food and Beverage NQF 5									
Fundamental	L	C	Core	L	C	Elective (Choose a min of 20 credits)	L	C	
Communication			Manufacturing and operations			Food and Beverage			
Conduct communication within a business environment.	5	8	Oversee operations on a sensitive manufacturing line	5	9	Apply microbiological principles in a food or beverage environment. (Registered)	4	6	
Mathematics, statistics and financial			Manage and control plant change over, starting and shut down processes in a sensitive consumer manufacturing environment.	5	15	Demonstrate an understanding of food or beverage safety practices and procedures in the food or beverage manufacturing environment. (Registered)	4	6	
Prepare and maintain financial records and statements. (Registered)	5	10	Apply production and resource scheduling and planning in a manufacturing environment.	5	8	Control and adjust utilities in a food or beverage manufacturing plant. (Registered)	4	10	
Manufacturing and operations			Manage food or beverage raw materials and products in a food or beverage processing environment. (Registered)	4	6	Provide scientific, technical and quality standards and information for sensitive product and packaging.	5	7	
Demonstrate an understanding of manufacturing, principles, methodologies and processes.	5	7	Safety and quality assurance			Determine the quality of food products using sensory evaluation. (Registered)	4	10	
Labour and employee relations			Apply and manage safety and housekeeping practices in a sensitive manufacturing environment	5	7				
Manage individual and team performance (Registered)	4	8	Monitor and control quality assurance practices in a sensitive consumer product manufacturing environment.	5	8				
Demonstrate understanding of employment relations in an organization (Registered)	3	3	Labour and employee relations						
			Supervise work unit to achieve work unit objectives (Registered)	4	12				
			Represent stakeholders in consultations and discussions on matters that arise at shop floor level. (Registered)	3	3				
Total		36	Total		68	Total		39	

Qualification total:

143

UNIT STANDARDS IN NATIONAL CERTIFICATE IN FIRST LINE MANUFACTURING MANAGEMENT: FOOD AND BEVERAGE NQF 5

UNIT STANDARDS AT NQF LEVEL 5

- Title 1:** Conduct communication within a business environment.
- Title 2:** Oversee operations on an sensitive product manufacturing line
- Title 3:** Apply and maintain safety and housekeeping practices in a sensitive consumer manufacturing environment.
- Title 4:** Demonstrate an understanding of manufacturing, principles, methodologies and processes.
- Title 5:** Manage and control plant change over, starting and shut down processes in a sensitive consumer manufacturing environment.
- Title 6:** Control production and resource scheduling and planning in a manufacturing environment.
- Title 7:** Monitor and control quality assurance practices in a sensitive consumer product manufacturing environment.
- Title 8:** Provide scientific, technical and quality standards and information for sensitive product and packaging

UNIT STANDARDS AND SPECIFIC OUTCOMES IN NATIONAL CERTIFICATE IN MANUFACTURING FIRST LINE MANAGEMENT: FOOD AND BEVERAGE NQF 5

UNIT STANDARDS AT NQF LEVEL 5

1. Title: Conduct communication within a business environment.

- Specific outcome 1.1:** Demonstrate an understanding of communication channels in business and everyday life.
- Specific outcome 1.2:** Conduct written and verbal communication within the business environment.
- Specific outcome 1.3:** Use communication in a business environment.

2. Title: Oversee operations on a sensitive product manufacturing line

- Specific outcome 2.1:** Demonstrate an understanding of the role of the manufacturing on the total organisation,
- Specific outcome 2.2:** Evaluate line balances,
- Specific outcome 2.3:** Prepare a production line,
- Specific outcome 2.4:** Maintain production line operations.

3. Title: Apply and maintain safety and housekeeping practices in a sensitive consumer manufacturing environment.

- Specific outcome 3.1:** Demonstrate an understanding of safety and housekeeping hazards in a manufacturing environment,
- Specific outcome 3.2:** Prepare a safety and manufacturing housekeeping plan,
- Specific outcome 3.3:** Maintain a safety and manufacturing housekeeping plan,
- Specific outcome 3.4:** Review and maintain a safety and manufacturing housekeeping plan.

4. Title: Demonstrate an understanding of manufacturing, principles, methodologies and processes.

- Specific outcome 4.1:** Demonstrate an understanding of the role of the manufacturing operation,
- Specific outcome 4.2:** Demonstrate an understanding of the effects of globalisation on manufacturing,

Specific outcome 4.3: Demonstrate an understanding of manufacturing methodologies.

5. Title: Manage and control plant change over, starting and shut down processes in a sensitive consumer manufacturing environment.

Specific outcome 5.1: Demonstrate an understanding of change overs, starting –up and shutting down processes,

Specific outcome 5.2: Oversee a change over process,

Specific outcome 5.3: Oversee a starting-up process,

Specific outcome 5.4: Oversee a shutting down process.

6. Title: Control production and resource scheduling and planning in a manufacturing environment.

Specific outcome 6.1: Control the sourcing of material,

Specific outcome 6.2: Plan production line manning levels,

Specific outcome 6.3: Plan machine changeovers and maintenance,

Specific outcome 6.4: Compile production reports.

7. Title: Monitor and control quality assurance practices in a sensitive consumer product manufacturing environment.

Specific outcome 7.1: Demonstrate an understanding of quality assurance practices in a sensitive consumer products manufacturing environment,

Specific outcome 7.2: Integrate quality assurance practices into a sensitive consumer products production or packing line,

Specific outcome 7.3: Monitor the quality on a sensitive consumer products production or packaging line,

Specific outcome 7.4: Resolve non-conformance to quality in sensitive consumer products or containers.

8. Title: Provide scientific, technical and quality standards and information for sensitive product and packaging

Specific outcome 8.1: Demonstrate an understanding of sensitive consumer product and packaging standards,

Specific outcome 8.2: Provide product and packaging information,

Specific outcome 8.3: Write production and technical reports.

National Diploma in Manufacturing Management: Food and Beverage Manufacturing Management NQF 6

Field:	Manufacturing, Engineering and Technology - NSB 06
Sub-field:	Manufacturing and Assembly
Level:	6
Credit:	240 (275)
Issue date:	
Review date:	

Rationale of the qualification

A generic manufacturing management diploma does not satisfy the needs of the food and beverage manufacturing industry. The mentoring of a person with management skills and knowledge but without the food and beverage manufacturing understanding and technology basis is not always a solution to this consumer driven industry. A manufacturing management person contextualised within the food and/or beverage manufacturing environment is a need expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the diversity of the food and beverage manufacturing environment. The qualification further provides the flexibility to articulate to other sensitive consumer manufacturing environments such as fast moving consumable products and pharmaceutical and packaging environment.

The level of flexibility within the range of electives will allow the individual to pursue some further specialization within change management, food or beverage quality assurance, product development, packaging development.

Purpose of the qualification

A person acquiring this qualification will be able to plan, organize, lead, manage and control human, financial, physical and information resources in a food or beverage manufacturing environment in order to achieve the objectives of the organization.

This qualification will contribute to the full development of the learner with in the food or beverages manufacturing environment by providing recognition, further mobility and transportability within the field of fast moving consumable products and pharmaceutical and packaging environment.

The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the food and beverage manufacturing environment.

Access to the Qualification

Mathematical and communication skills on NQF 4,
Food or beverage processing knowledge and skills on NQF 4.

Learning assumed to be in place

A knowledge, comprehension and application of language, mathematics, natural science and technology on NQF 4, information technology on NQF 3, food or beverage safety practices and procedures (HACCP) in the food or beverage manufacturing environment, quality assurance practices in a food or beverage manufacturing environment.

Exit level Outcomes

Qualifying learners can:

Exit level 1: Manage a work unit to achieve organisational objectives.

Associated Assessment Criteria

- Conduct interpersonal management to manage a work unit,
- Lead and supervise a work unit to achieve organisational objectives,
- Supervise and lead a project team to deliver project objectives,
- Facilitate change management

Exit level 2: Provide food or beverage technical information on products and processing procedures.

Associated Assessment Criteria

- Improve new food products standards,
- Verify a suppliers quality control system in a food or beverage environment,
- Provide nutritional information on food or beverage products and processing procedures,
- Manage and control a quality assurance system in a sensitive consumer manufacturing unit,

Exit level 3: Manage a manufacturing unit

Associated Assessment Criteria

- Manage and develop improvements for manufacturing processes in a manufacturing environment,
- Manage workplace safety, personal safety, hygiene and housekeeping systems in a manufacturing unit,
- Maintain a food safety programme.

Exit level 4: Establish and maintain labour and employee relations

Associated Assessment Criteria

- Demonstrate and apply human resources and industrial relation principles and legislation,
- Handle industrial action within manufacturing unit,
- Manage skills training and development within a team in a manufacturing unit.

International comparability

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level.

Integrated Assessment

The applied competence (practical, foundational and reflexive competencies) of this qualification will be achieved if a candidate is able plan, organize, lead, manage and control human, financial, physical and information resources in a food or beverage manufacturing environment in order to achieve the objectives of the organization.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

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.

Articulation possibilities

This qualification will enable the qualifying candidate to progress to learning for other national first degrees in management and manufacturing management on NQF 7.

This qualification provides entry to qualifications in food and beverage manufacturing supervision, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

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 ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (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 registration of assessors

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of food or beverage manufacturing management.
- A national first degree in food or beverage manufacturing management on NQF level 7 and 6 months field experience,
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body and HET ETQA.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)

National Diploma in Manufacturing Management: Food and Beverage Management NQF 6

Fundamentals	L	C	Core	L	C	Elective Choose 97 credits	L	C
Management			Team management			Food and Beverage		
Conduct interpersonal management.	6	6	Facilitate change management process (registered)	7	12	Develop a processing recipe for a food product. (Registered)	6	8
Implement operational management techniques and principles.	6	8	Supervise a project team of a technical project to deliver project objectives. (Registered)	6	5	Demonstrate an understanding of the relationship between micro-organisms and food spoilage. (Registered)	4	8
Lead work unit to achieve organisational objectives (registered)	6	10	Manage work unit to achieve organisational objectives (Registered)	6	12	Provide technical information on food or beverage products and processing procedures. (Registered)	6	12
Financial management			Conduct an disciplinary hearing (Registered)	6	5	Update and publish specifications for food or beverage products. (Registered)	6	6
Apply financial and business principles in a manufacturing environment.	6	8	Manufacturing			Demonstrate an understanding of food or beverage science and technology.	6	8
Select, measure, classify and record accounting and non-financial data (Registered)	6	10	Manage plant design and maintenance for a sensitive consumer manufacturing environment.	6	8	Provide nutritional information on food or beverage products. (Registered)	6	12
Industrial principles			Demonstrate an understanding of brand development and maintaining customer relationships (to be developed)	5	6	Manage operations in a food or beverage laboratory. (Registered)	5	6
Demonstrate an understanding of industrial relation principles and legislation.	6	6	Develop processes to enhance the manufacturing process for sensitive consumer products.	6	8	Develop new a food product and standards. (Registered)	6	10
			Implement and maintain production plans. (Registered)	5	4	Demonstrate an understanding of environmental sanitation within the sensitive consumer manufacturing environment.	6	8
			Control product and material sourcing and purchasing for sensitive consumer products manufacturing.	6	8	Maintain a food safety programme. (Registered)	5	4
			Safety and quality assurance			Implement and maintain a food or beverage production quality assurance system. (Registered)	4	8
			Maintain a sensitive customer product safety programme in a manufacturing environment.	6	8	Team development		
			Manage safety and housekeeping in a sensitive consumer manufacturing environment.	6	6	Manage skills training and development within a team in a manufacturing unit.	6	8
			Verify a suppliers quality assurance system in a food or beverage manufacturing environment (Registered).	5	4	Recruit and select candidates to fill defined positions (Registered)	4	10
			Manage a quality assurance system in a sensitive consumer product manufacturing environment	6	9	Handle industrial action (Registered)	5	5
						Develop and implement changes in organisational process and systems to improve organisational culture and climate (Registered)	6	12
						Negotiate collective agreements to regulate employment relations (Registered)	6	7
Total		48	Total		95	Total		132

Qualification total

275

UNIT STANDARDS IN NATIONAL DIPLOMA IN MANUFACTURING MANAGEMENT: FOOD AND BEVERAGE NQF 6

UNIT STANDARDS AT NQF LEVEL 6

- Title 1:** Conduct interpersonal management
- Title 2:** Maintain a sensitive customer product safety programme in a manufacturing environment.
- Title 3:** Manage skills training and development within a team in a manufacturing unit.
- Title 4:** Apply financial and business principles in a manufacturing environment.
- Title 5:** Manage a quality assurance system in a sensitive consumer product manufacturing environment.
- Title 6:** Manage plant design and maintenance for a sensitive consumer manufacturing environment
- Title 7:** Develop processes to enhance the manufacturing process for a sensitive consumer products
- Title 8:** Manage safety and housekeeping in a sensitive consumer manufacturing environment
- Title 9:** Demonstrate an understanding of human resources and industrial relation principles and legislation.
- Title 10:** Demonstrate an understanding of food or beverage science and technology.
- Title 11:** Implement operational management techniques and principles.
- Title 12:** Demonstrate an understanding of environmental sanitation within the food or pharmaceutical manufacturing environment.
- Title 13:** Control product and material sourcing and purchasing for sensitive consumer products manufacturing

UNIT STANDARDS AND SPECIFIC OUTCOMES IN NATIONAL DIPLOMA IN MANUFACTURING MANAGEMENT: FOOD AND BEVERAGE NQF 6

UNIT STANDARDS AT NQF LEVEL 6

1. Title: Conduct interpersonal management

- Specific outcome 1.1:** Apply time management techniques,
- Specific outcome 1.2:** Conduct verbal and written presentations,
- Specific outcome 1.3:** Plan and prioritise actions,
- Specific outcome 1.4:** Solve problems and make decisions.

2. Title: Maintain a sensitive customer product safety programme in a manufacturing environment.

- Specific outcome 2.1:** Demonstrate an understanding of a sensitive consumer product safety programme,
- Specific outcome 2.2:** Implement a sensitive consumer product safety programme,
- Specific outcome 2.3:** Maintain a sensitive consumer product safety programme.

3. Title: Manage skills training and development within a team in a manufacturing unit.

- Specific outcome 3.1:** Analyse team performance in relationship to organisational requirements,
- Specific outcome 3.2:** Compile skills and training development plans for the business and individuals,
- Specific outcome 3.3:** Implement a training and development plan,
- Specific outcome 3.4:** Manage a team training and development requirements.

4. Title: Apply financial and business principles in a manufacturing environment.

- Specific outcome 4.1:** Interpret financial statements and budgets,
Specific outcome 4.2: Compile a budget and a cash flow forecast for a manufacturing environment,
Specific outcome 4.3: Control financial expenditure,
Specific outcome 4.4: Compile business report.

5. Title: Manage a quality assurance system in a sensitive consumer product manufacturing environment.

- Specific outcome 5.1:** Design a quality assurance system,
Specific outcome 5.2: Implement a quality assurance system,
Specific outcome 5.3: Identify and implement improvements to the quality assurance system,
Specific outcome 5.4: Conduct quality audits and inspections.

6. Title: Manage plant design and maintenance for a sensitive consumer manufacturing environment

- Specific outcome 6.1:** Analyse a manufacturing plant design, maintenance and product technology,
Specific outcome 6.2: Manage and control improvements projects for plant design, maintenance and product technology,
Specific outcome 6.3: Review improvement effectiveness.

7. Title: Develop processes to enhance the manufacturing process for a sensitive consumer products

- Specific outcome 7.1:** Analyse manufacturing layouts and working methods,
Specific outcome 7.2: Evaluate line balances,
Specific outcome 7.3: Conduct organisation and work study techniques,
Specific outcome 7.4: Apply management principles for manufacturing process enhancing.

8. Title: Manage safety and housekeeping in a sensitive consumer manufacturing environment

- Specific outcome 8.1:** Design and implement safety and housekeeping system,
Specific outcome 8.2: Analyse safety and housekeeping practices,
Specific outcome 8.3: Monitor safety and housekeeping system,
Specific outcome 8.4: Manage and control a safety and housekeeping system.

9. Title: Demonstrate an understanding of human resources and industrial relation principles and legislation.

- Specific outcome 9.1:** Demonstrate an understanding of the industrial relations legislation,
Specific outcome 9.2: Demonstrate an understanding of human resources legislation,
Specific outcome 9.3: Demonstrate an understanding of negotiations with trade unions.

10. Title: Demonstrate an understanding of food or beverage science and technology.

- Specific outcome 10.1:** Demonstrate an understanding of the nutritive aspects of food constituents,
Specific outcome 10.2: Demonstrate an understanding of quality factors of a food or beverage product,
Specific outcome 10.3: Demonstrate an understanding of food or beverage processing technologies,
Specific outcome 10.4: Demonstrate an understanding of packaging technology of food or beverage products.

11. Title: Implement operational management techniques and principles

- Specific outcome 11.1:** Demonstrate an understanding of operational management principles,
Specific outcome 11.2: Implement production management techniques,
Specific outcome 11.3: Implement operational plans and policies,
Specific outcome 11.4: Implement the total quality management model.

12. Title: Demonstrate an understanding of environmental sanitation within the sensitive consumer manufacturing environment.

- Specific outcome 12.1:** Demonstrate an understanding of cleaning and sanitising procedures and methods in a sensitive consumer production line,
Specific outcome 12.2: Demonstrate an understanding of water treatment processes,
Specific outcome 12.3: Identify sanitation barriers in the manufacturing environment.
Specific outcome 12.4: Demonstrate an understanding of cleaning and sanitising procedures and methods in a sensitive consumer production line,

13. Title: Control product and material sourcing and purchasing for sensitive consumer products manufacturing

- Specific outcome 13.1:** Determine product and material order requirements,
Specific outcome 13.2: Negotiate contracts with suppliers,
Specific outcome 13.3: Manage material and product flow stock control,
Specific outcome 13.4: Supervise the receiving process,
Specific outcome 13.4 Supervise the financial aspect of purchasing.

**PUBLIC NOTICE BY NSB 06, MANUFACTURING, ENGINEERING AND
TECHNOLOGY TO REGISTER SGB FOR MANUFACTURING AND ASSEMBLY
PROCESSES FROM NQF LEVELS 1 - 6**

National Standards Body (NSB 06) – Manufacturing, Engineering and Technology hereby register a SGB for Manufacturing and Assembly Processes in the sub-field of Manufacturing and Assembly from NQF levels 1 – 6.

BRIEF OF THE SGB

1. Develop learning pathways for potential qualifications and unit standards in the sub-field of Manufacturing and Assembly in NSB 06 Manufacturing, Engineering and Technology from Level 1 through to level 6 [*Regulation 24(1)(e)*].
2. Generate the following qualifications in accordance with Authority requirements [*Regulation 24(1)(a)*]

These would cover: Ferrous and non-ferrous metals manufacturing; Automotive components; Electrical equipment and component production including, power and telecommunications cables; Ferrous and non Ferrous metal products; Ferrous and non-ferrous metal intermediate; Ferrous and non-ferrous metal fabrication and Automobile Assembly.

- National Certificate in Ferrous and Non-Ferrous Manufacturing and Assembly (Level 2)
 - National Certificate in Ferrous and Non-Ferrous Manufacturing and Assembly (Level 3)
 - National Certificate in Ferrous and Non-Ferrous Manufacturing and Assembly (Level 4)
 - National Diploma in Ferrous and Non-Ferrous Manufacturing and Assembly (Level 5)
 - First National Degree Ferrous and Non-Ferrous Manufacturing and Assembly (Level 6) [*Regulation 24(1)(a)*].
3. Recommend the standards and qualifications generated under 2, above to the National Standards Body [*Regulation 24(1)(c)*].
 4. Recommend criteria for the registration of assessors and moderators or moderating bodies [*Regulation 24(1)(d)*].
 5. Review these qualifications and unit standards and effect the necessary changes [*Regulation 24(1)(b)*].
 6. Maintain liaison during the process of developing standards and qualifications with other related Standards Generating Bodies in the field [*Regulation 24(1)(e)*].

COMPOSITION OF THE SGB

NOMINEE	Workplace	Nominating Body	Experience/ Qualifications
Verryne P	Dorbyl	National Union of Metal Workers of South Africa (NUMSA)	Matric Operator
Potgieter M	D & B Wiring)	National Union of Metal Workers of South Africa (NUMSA)	Certificate: Development Program in Labour Relations Training Officer
Masuku P	Bosal South Africa	National Union of Metal Workers of South Africa (NUMSA)	Matric Certificate: Development Program in Labour Relations
Singh N	Defy Appliances	National Employee Trade Union (NETU)	Senior Quality Inspector NTC 03 Production Management Industrial Relations Diploma
Swarts B	Cape Gate	Mine Workers Union (MWU)	Fitter Fitter and Turner Advanced Certificate in Human Resources
Mokwena I	National Union of Metal Workers of South Africa (NUMSA)	National Union of Metal Workers of South Africa (NUMSA)	Machanic Fitter and Turner
Ditsela P	Nissan South Africa	National Union of Metal Workers of South Africa (NUMSA)	Training Officer IPM Diploma Moulder Certificate: Principles of Training
Makwe E S	Columbus Stainless Steel	National Union of Metal Workers of South Africa (NUMSA)	Technical Inspector Fitter N 03
Saunders B	Aberdare Cables	Cable Association of South Africa	Training Officer Electrician N 03
Kirsten E	Grinaker LTA	Grinaker LTA	Human Resource Manager National Diploma: Personnel Management

Daniels K	Saldanha Steel	ISCOR	SDF Specialist B.Education
Roberts M	Smiths Manufacturing	Smiths Manufacturing	Human Resources General Manager B Social Science
Eramus P	Robert Bosch	Robert Bosch	SDF Specialists National Diploma: Higher Education National Diploma: Instrumentation N 06 Electro Technician Radar
Van Der Bergh J	Cape Gate	Steel Engineering Federation of South Africa (SEFSA)	Human Resource Development Specialist National Diploma: Personnel Management Human Resources Development
Gibson A	ABB Powertech	ABB Powertech	Employee Development Manager National Diploma for Technicians Government Certificate Competency Certificate in General Management

Dog ate your Gazette? ... read it online




www.SA Gazettes.co.za

A new information Portal keeping you up to date with news, legislation, the Parliamentary programme and which is the largest pool of SA Gazette information available on the Web.

- Easily accessible through the www!
 - Government Gazettes - from January 1994
 - Compilations of all Indexes pertaining to the past week's Government Gazettes
 - All Provincial Gazettes - from September 1995
 - Parliamentary Bills - as of January 1999
- Available in full-text, with keyword searching
- Sabinet Online scans, formats, edits and organize information for you. Diagrams and forms included as images.
- No stacks of printed gazettes - all on computer. Think of the storage space you save.
- Offer Bill Tracker - complementing the SA Gazettes products.

For easy electronic access to full-text gazette info, subscribe to the SA Gazettes from Sabinet Online. Please visit us at www.sagazettes.co.za





*Looking for back copies and out of print issues of
the Government Gazette and Provincial Gazettes?*

The National Library of SA has them!

Let us make your day with the information you need ...

National Library of SA, Pretoria Division

PO Box 397

0001 PRETORIA

Tel.:(012) 321-8931, Fax: (012) 325-5984

E-mail: infodesk@nlsa.ac.za



*Soek u ou kopieë en uit druk uitgawes van die
Staatshoerant en Provinsiale Koerante?*

Die Nasionale Biblioteek van SA het hulle!

Met ons hoef u nie te sukkel om inligting te bekom nie ...

Nasionale Biblioteek van SA, Pretoria Divisie

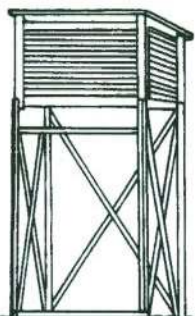
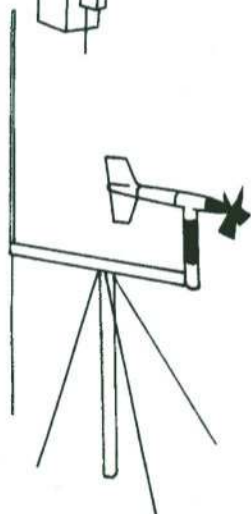
Posbus 397

0001 PRETORIA

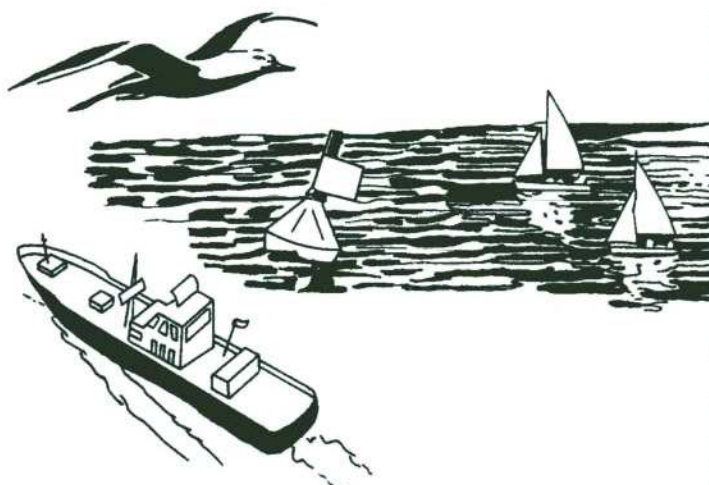
Tel.:(012) 321-8931, Faks: (012) 325-5984

E-pos: infodesk@nlsa.ac.za

SA WEATHER BUREAU SA WEERBURO



**W
E
A
T
H
E
R
·
S
E
R
V
I
C
E
S
·
W
E
E
R
D
I
E
N
S
T
E**





Printed by and obtainable from the Government Printer, Bosman Street, Private Bag X85, Pretoria, 0001

Publications: Tel: (012) 334-4508, 334-4509, 334-4510

Advertisements: Tel: (012) 334-4673, 334-4674, 334-4504

Subscriptions: Tel: (012) 334-4735, 334-4736, 334-4737

Cape Town Branch: Tel: (021) 465-7531

Gedruk deur en verkrygbaar by die Staatsdrukker, Bosmanstraat, Privaatsak X85, Pretoria, 0001

Publikasies: Tel: (012) 334-4508, 334-4509, 334-4510

Advertensies: Tel: (012) 334-4673, 334-4674, 334-4504

Subskripsies: Tel: (012) 334-4735, 334-4736, 334-4737

Kaapstad-tak: Tel: (021) 465-7531