National Vocational Certificate in Mechanical Engineering (Fitting and Machining) (Level 2)

NQF Level of qualification: **2**

Total credits available: **113**

Total credits required: **113**

	Compulsory	Elective
level 1 credits available	**49**	**-**
level 2 credits available	**64**	**-**
Minimum Credit required	**113**	**-**

Registration date: 29 November 2018

Scheduled review date: 2023

Body responsible for the qualification: Namibia Training Authority through the Manufacturing, Automotive Sales and Arts & Crafts Industry Skills Committee.

Other bodies whose unit standards are included in the qualification: None

1 Purpose

This qualification recognises people who have the competencies required for performing fitting and machining tasks. It is awarded to people who have demonstrated the skills and knowledge required to demonstrate an understanding of engineering materials used in the fitting and machining working environment, install and maintain belts and pulleys, install and maintain chain drive and sprockets, lift and move loads using manual lifting equipment, maintain valves in the fitting and machining working environment, conduct couplings and shafts alignment, demonstrate knowledge of threads used in the fitting and machining environment, use fasteners and locking devices, use and maintain of hand tools used for fitting and machining operations, demonstrate an understanding of allowances, tolerances and fits and demonstrate an understanding and use cutting tools used in the fitting and machining working environment, cut mild steel pieces using oxy-acetylene cutting equipment as part of metal fabrication operations, weld mild steel using the oxy-acetylene welding process in the down hand position and assemble and test oxy-acetylene welding equipment as part of metal fabrication operations. They further have a good understanding of providing basic first aid; apply basic reading skills in a workplace environment; interact with others in a workplace environment; use workplace document; demonstrate basic awareness of HIV and AIDS, demonstrate basic knowledge of workplace health and safety; apply basic entrepreneurship; apply basic numeracy skills in a workplace environment; apply knowledge of basic engineering science different context and apply knowledge of basic drawing different context.

This qualification leads vertically to National Vocational Certificate in Mechanical Engineering (Fitting and Machining) (Level 3) through participating in full time study at an accredited training provider or through RPL (Recognition of Prior Learning).

2 Regulations for the qualification

2.1 Summary of qualification requirements

This qualification is designed to be accessible and flexible.The entry requirement for this qualification is the ability to demonstrate basic communication skills in the English language and the ability to demonstrate basic numeracy skills. This has been done in order remove barriers of formal educational prerequisites.

This qualification will be awarded to people who are credited with a minimum of 113 credits and have met the requirements of the compulsory section, as well as all requirements for Workplace Integrated Learning (WIL) as laid out in the National Policy On Work-Integrated Learning for Technical and Vocational Education and Training (TVET).

2.2 Detailed qualification requirements

Compulsory
All the unit standards listed below are required.

Field: Manufacturing, Engineering and Technology
Subfield: Mechanical Engineering
Domain: Fitting and Machining

Unit No.	Unit Standard Title	Level	Credits
2079	Demonstrate an understanding of engineering materials used in the fitting and machining working environment	2	8
2077	Install and maintain belts and pulleys	2	4
2080	Install and maintain chain drive and sprockets	2	4
2081	Lift and move loads using manual lifting equipment	2	6
2082	Maintain valves in the fitting and machining working environment	2	4
2083	Conduct couplings and shafts alignment	2	6
2078	Demonstrate knowledge of threads used in the fitting and machining environment	2	2
2084	Use fasteners and locking devices	2	6
2074	Use and maintain hand tools used for fitting and machining operations	1	8
2075	Demonstrate an understanding of allowances, tolerances and fits	1	1
2076	Demonstrate an understanding and use cutting tools used in the fitting and machining working environment	1	1

AND

FIELD: Manufacturing, Engineering and Technology
Subfield: Mechanical Engineering
Domain: Metal Fabrication

Unit ID	Unit Standard Title	Level	Credits
238	Cut mild steel using oxy-acetylene cutting equipment as part of metal fabrication operations	2	2
235	Weld mild steel using the oxy-acetylene welding process in the down hand position	2	6
234	Assemble and test oxy-acetylene welding equipment as part of metal fabrication operations	2	4

AND

FIELD: Health Sciences and Social Sciences
Subfield: Core Health
Domain: First Aid

Unit No.	Unit Standard Title	Level	Credits
843	Provide basic First Aid	1	3

AND

FIELD: Communication Studies and Languages
Subfield: Communication
Domain: Foundational Communication Skills

Unit No.	Unit Standard Title	Level	Credits
1150	Apply basic reading skills in a workplace environment	1	3
1151	Interact with others in a workplace environment	1	5
1152	Use workplace document	1	5

AND

FIELD: Health Sciences and Social Services
Subfield: Core Health
Domain: HIV and AIDS Awareness

Unit No.	Unit Standard Title	Level	Credits
1155	Demonstrate basic awareness of HIV and AIDS	1	6

AND

FIELD: Health Sciences and Social Services
Subfield: Preventative Health
Domain: Occupational health and Safety

Unit No.	Unit Standard Title	Level	Credits
1157	Demonstrate basic knowledge of workplace health and safety	1	7

AND

FIELD: Financial and Business Services
Subfield: Business Development
Domain: Entrepreneurship

Unit No.	Unit Standard Title	Level	Credits
1158	Apply basic entrepreneurship	1	5

AND

FIELD: Physical, Mathematics and Computer Sciences
Subfield: Numeracy
Domain: Foundation Numeracy Skills

Unit No.	Unit Standard Title	Level	Credits
1153	Apply basic numeracy skills in a workplace environment	1	5

AND

FIELD: Physical, Mathematics and Computer Sciences
Subfield: Engineering Science and Drawing
Domain: Foundation Numeracy, Engineering Science and Drawing

Unit No.	Unit Standard Title	Level	Credits
893	Apply knowledge of basic engineering science different context	2	6
900	Apply knowledge of basic drawing different context	2	6

3 Credit recognition and transfer arrangements

Credits for any version of a unit standard of the same identification number will be recognised in the award of this qualification.

4 Special arrangements

4.1 Providers seeking accreditation and registration to deliver this qualification must meet the following special arrangements

4.1.1 This qualification will be offered to trainees **either** including a period of 6 month of **industrial / job attachment,** or as an **apprenticeship scheme** of a duration determined and agreed upon by the employer and the training provider on a ratio of 70/30 (70% at workplace and 30% at training institution) basis.

Industrial/ Job Attachment is defined as a period in a workplace setting where a trainee obtains structured practical experience in a specific occupation in order to complement competencies acquired during training at a technical vocational training provider(TVTP).

Apprenticeship refers to the system of work intergrated learning, where apprentice is employed by a company on contractual basis, earning a monthly salary, learning and working side by side with an experienced mentor. In this case the employer must be an NTA approved entity or company to register apprentices and has to identifiy a suitable training provider to provide the apprentice with the opportunity to gain skills and knowledge fron theoretical training.

Employers and training providers are encourage to consult the **National Policy On Work-Integrated Learning (WIL) for Technical and Vocational Education and Training (TVET) Sector** for further details on WIL implementation.

4.1.2 Providers involved in the assessment of this qualification and the associated unit standards must comply with the national assessment arrangements for the VET system up to and including level 5 of the Namibia Qualifications Framework. Assesment will include performance and achievement assessment acquired through work integrated learning period. Assessment arrangement apply to all occupations and industries which are encomposed in the technical vocational education sector.

4.1.3 Providers of this qualification and the associated unit standards must be registered and /or accredited.

4.1.4 Providers of this qualification and their associated unit standards must have access to all equipment and facilities detailed in the tools and equipment list fo the of the relevant training program.

4.2 Competencies covered in this qualification may be assessed through Recognition of Prior Learning (RPL).

4.3 Further relevant information and documentation may be accessed through:

Namibia Training Authority
10 Rand Street
Khomasdal
Namibia
Telephone number: 061 207 8550
Facsimile number: 061 207 8551

5. TRANSITION ARRANGEMENTS

5.1 Non National Qualifications Framework transition

None

5.2 National Qualifications Framework transition

This is the first version of this qualification.

National Vocational Certificate in Mechanical Engineering (Fitting and Machining) (Level 3)

NQF Level of qualification: 3

Total credits available: 79

Total credits required: 79

	Compulsory	Elective
level 2 credits available	**6**	**-**
level 3 credits available	**73**	**-**
Minimum credit required	**79**	**-**

Registration date: 29 November 2018

Scheduled review date: 2023

Body responsible for the qualification: Namibia Training Authority through the Manufacturing, Automotive Sales and Arts & Crafts Industry Skills Committee.

Other bodies whose unit standards are included in the qualification: None

1 Purpose

This qualification recognises people who have the competencies required for performing fitting and machining tasks. It is awarded to people who have demonstrated the skills and knowledge required to install hydraulic line, demonstrate an understanding of pneumatic and hydraulic principles, use and maintain industrial machines used in the fitting and machining working environment, maintain a gearbox and weld mild steel using the manual arc welding process in the down hand position. They further have a good understanding of applying knowledge of fundamental engineering science in different context; apply knowledge of basic mathematic in different context, and apply fundamental knowledge of engineering drawing.

This qualification leads vertically to National Vocational Certificate in Mechanical Engineering (fitting and machining) (Level 4) through participating in full time study at an accredited training provider or through RPL (Recognition of Prior Learning).

2 Regulations for the qualification

2.1 Summary of qualification requirements

The entry requirement is the National Vocational Certificate in Mechanical Engineering (Fitting and Machining) (Level 2) or equivalent.

This qualification will be awarded to people who are credited with a minimum of 79 credits and have met the requirements of the compulsory section, as well as all requirements for Workplace Integrated Learning (WIL) as laid out in the National Policy On Work-Integrated Learning for Technical and Vocational Education and Training (TVET).

2.2 Detailed qualification requirements

Compulsory
All the unit standards listed below are required

FIELD: Manufacturing, Engineering and Technology
Subfield: Mechanical Engineering
Domain: Fitting and Machining

Unit ID	Unit Standard Title	Level	Credits
2085	Install hydraulic line	3	15
2086	Demonstrate an understanding of pneumatic and hydraulic principles	3	15
2087	Use and maintain industrial machines used in the fitting and machining working environment	3	15
2088	Maintain a gearbox	3	10

AND

FIELD: Manufacturing, Engineering and Technology
Subfield: Mechanical Engineering
Domain: Metal Fabrication

Unit ID	Unit Standard Title	Level	Credits
236	Weld mild steel using the manual arc welding process in the down hand position	2	6

AND

FIELD: Physical, Mathematics and Computer Sciences
Subfield: Numeracy
Domain: Foundation Numeracy Skills

Unit ID	Unit Standard Title	Level	Credits
891	Apply knowledge of basic mathematics in different context	3	6

AND

FIELD: Manufacturing, Engineering and Technology
Subfield: Foundational Engineering Science and engineering drawing
Domain: Foundation Engineering Science and Drawing skills

Unit ID	Unit Standard Title	Level	Credits
894	Apply knowledge of fundamental engineering science in different contexts	3	6

901	Apply fundamental knowledge of engineering drawing in different contexts	3	6

3 Credit recognition and transfer arrangements

Credits for any version of a unit standard of the same identification number will be recognised in the award of this qualification.

4 Special arrangements

4.1 Providers seeking accreditation and registration to deliver this qualification must meet the following special arrangements.

4.1.1 This qualification will be offered to trainees **either** including a period of 6 month of **industrial / job attachment,** or as an **apprenticeship scheme** of a duration determined and agreed upon by the employer and the training provider on a ratio of 70/30 (70% at workplace and 30% at training institution) basis.

Industrial/ Job Attachment is defined as a period in a workplace setting where a trainee obtains structured practical experience in a specific occupation in order to complement competencies acquired during training at a technical vocational training provider(TVTP).

Apprenticeship refers to the system of work integrated learning, where apprentice is employed by a company on contractual basis, earning a monthly salary, learning and working side by side with an experienced mentor. In this case the employer must be an NTA approved entity or company to register apprentices and has to identify a suitable training provider to provide the apprentice with the opportunity to gain skills and knowledge from theoretical training.

Employers and training providers are encourage to consult the **National Policy On Work-Integrated Learning (WIL) for Technical and Vocational Education and Training (TVET) Sector** for further details on WIL implementation.

4.1.2 Providers involved in the assessment of this qualification and the associated unit standards must comply with the national assessment arrangements for the VET system up to and including level 5 of the Namibia Qualifications Framework. Assessment will include performance and achievement assessment acquired through work integrated learning period. Assessment arrangements apply to all occupations and industries which are encompassed in the technical vocational education sector.

4.1.3 Providers of this qualification and the associated unit standards must be registered and /or accredited.

4.1.4 Providers of this qualification and their associated unit standards must have access to all equipment and facilities detailed in the tools and equipment list of the relevant training program.

4.2 Competencies covered in this qualification may be assessed through Recognition of Prior Learning (RPL).

4.3 Further relevant information and documentation may be accessed through:

Namibia Training Authority
10 Rand Street
Khomasdal
Namibia
Telephone number: 061 207 8550
Facsimile number: 061 207 8551

5. TRANSITION ARRANGEMENTS

5.1 Non National Qualifications Framework transition

None

5.2 National Qualifications Framework transition

This is the first version of this qualification.

National Vocational Certificate in Mechanical Engineering (Fitting and Machining) (Level 4)

NQF Level of qualification: 4

Total credits available: 100

Total credits required: 100

	Compulsory	Elective
level 4 credits available	**100**	**-**
Minimum credit required	**100**	**-**

Registration date: 29 November 2018

Scheduled review date: 2023

Body responsible for the qualification: Namibia Training Authority through the Manufacturing, Automotive Sales and Arts & Crafts Industry Skills Committee.

Other bodies whose unit standards are included in the qualification: None

1 Purpose

This qualification recognises people who have the competencies required for performing fitter and turner tasks. It is awarded to people who have demonstrated the skills and knowledge required to control processes in the engineering workshop, maintain hydraulic and pneumatic system, mill complex components using a milling machine, produce complex components using lathes and supervise workplace operations and enhance workplace productivity. They further have a good understanding of establish a business as part of entrepreneurship operations, implement, control and monitor business operations, apply knowledge of intermediate mathematics in different context, apply advanced knowledge of engineering science in different contexts and apply knowledge of advanced engineering drawing in different contexts.

2 Regulations for the qualification

2.1 Summary of qualification requirements

The entry requirement is the National Vocational Certificate in Mechanical Engineering (Fitting and Machining) (Level 3) or equivalent.

This qualification will be awarded to people who are credited with a minimum of 100 credits and have met the requirements of the compulsory section, as well as all requirements for Workplace Integrated Learning (WIL) as laid out in the National Policy On Work-Integrated Learning for Technical and Vocational Education and Training (TVET).

2.2 Detailed qualification requirements

Compulsory
All the unit standards listed below are required.

FIELD: Manufacturing, Engineering and Technology
Subfield: Mechanical Engineering
Domain: Fitting and Machining

Unit No.	Unit Standard Title	Level	Credits
2089	Control processes in the engineering workshop	4	10
2090	Maintain Hydraulic and Pneumatic system	4	10
2091	Mill complex components using a milling machine	4	15
2092	Produce complex components using lathes	4	14
2093	Supervise workplace operations and enhance workplace productivity	4	6

AND

FIELD: Financial and Business Services
Subfield: Business Development
Domain: Entrepreneurship

Unit No.	Unit Standard Title	Level	Credits
735	Establish a business as part of entrepreneurship operations	4	12
736	Implement, control and monitor business operations	4	15

AND

FIELD: Physical, Mathematics and Computer Sciences
Subfield: Numeracy
Domain: Foundation Numeracy Skills

Unit ID	Unit Standard Title	Level	Credits
892	Apply knowledge of intermediate mathematics in different context	4	6

AND

FIELD: Manufacturing, Engineering and Technology
Subfield: Foundational Engineering Science and engineering drawing
Domain: Foundational Engineering Science and Drawing Skills

Unit ID	Unit Standard Title	Level	Credits
896	Apply advanced knowledge of engineering science in different contexts	4	6
902	Apply knowledge of advanced engineering drawing in different contexts	4	6

3 Credit recognition and transfer arrangements

Credits for any version of a unit standard of the same identification number will be recognised in the award of this qualification.

4 Special arrangements

4.1 Providers seeking accreditation and registration to deliver this qualification must meet the following special arrangements:

4.1.1 This qualification will be offered to trainees **either** including a period of 6 month of **industrial / job attachment,** or as an **apprenticeship scheme** of a duration determined and agreed upon by the employer and the training provider on a ratio of 70/30 (70% at workplace and 30% at training institution) basis.

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Rand Street
Khomasdal
Namibia
Telephone number: 207 8550
Facsimile number: 207 8551
Email info@nta.com.na

5 Transition arrangements

5.1 Non National Qualifications Framework transition

None.

5.2 National Qualifications Framework transition

This is the first version of this qualification.