



Maldives National Skills Development Authority



National Competency Standard for Refrigeration and Air Conditioning Mechanic

Standard Code: FNA-17L4-V2-24

Qualification Name: National Certificate IV in Refrigeration and Air Conditioning Mechanic

FOREWORD

The pivotal role of the Maldives National Skills Development Authority (MNSDA) in meticulously implementing and expanding Technical and Vocational Education & Training (TVET) exemplifies the steadfast commitment of the Maldives to build a skilled and resilient workforce. This commitment is evident from the strategic formulation of National Standards and the establishment of a comprehensive framework for training and certification.

Under the Higher Education and Training Act 7/2021, the MNSDA assumes an instrumental role, reflecting the government's unwavering dedication to streamlining TVET policies and procedures. This includes the establishment of a robust system for accrediting and registering both Institution Based Training (IBT) and Employer Based Training (EBT) providers. The MNSDA's active involvement in conducting the National Apprenticeship Program (NAP), National Trade Testing and Certification (NTTC), and the issuance of National Certificates reflects a comprehensive approach to ensure elevated quality standards and competency within the workforce.

The National Occupational Competency Standards (NOCS) revised through the National Ozone Unit, Ministry of Environment, Climate Change and Technology accentuates the commitment to updating and sustaining contemporary skill sets aligned precisely with industry demands. Deliberate efforts to revise existing NOCS, coupled with the development of curriculum, teaching materials, resource books, and logbooks, attest to our dedication to ensuring the ongoing relevance and currency of the TVET system in the Maldives. Furthermore, these initiatives pave the way to develop the license or mandatory certification system for refrigeration and air-conditioning servicing technicians, thereby strengthening professional standards and safeguarding environmental sustainability.

The active engagement of Technical Panels and Employment Sector Councils in the NOCS development and approval process, coupled with alignment to the Maldives National Qualification Framework (MNQF) and accreditation by the Maldives Qualifications Authority (MQA), certifies that the TVET system not only remains highly responsive but also ensures the quality standards demanded by industries. This approach enables the system to effectively meet the diverse needs of industries and adapt to the evolving economic landscape.

The collaborative development of the National Certificate III in Refrigeration and Air Conditioning Mechanic by the MNSDA, National Ozone Unit, Ministry of Environment, Climate Change and Technology, and the VETAIMC & FJS Consulting exemplifies the practical implementation of TVET initiatives. This training package represents a critical stride towards addressing the requisite skills while fostering opportunities to integrate sustainable economic development within the TVET framework.



Dr. Zahra Mohamed

Chief Executive Officer

Maldives National Skills Development Authority

EMPLOYMENT SECTOR COUNCILS

#	Name	Designation	Organization
01	Adam Manik	Deputy Director General	Ministry of Fisheries and Agriculture
02	Hassan Shakeel	Senior Biologist	Marine Research Center, Ministry of Fisheries and Agriculture
03	Ali Amir	Director	Ministry of Fisheries and Agriculture
04	Hussain Shuaz	General Manager	MIFCO
05	Mohamed Zaheen	Lecturer	Zikura International College
06	Adnan Ali	Board Director / Advisor	Horizon Fisheries
07	Maizan Ahmed Manik	Chairman	Maizan Electronics
08	Aishath Shazleena	HR Manager	Agro National Corporation Ltd (AgroNat)
09	Shakeeba Ali	Director General	Maldives National Skills Development Authority

National Occupational Standard has been endorsed by:



Mohamed Zaheen

Chairperson

Fisheries and Agriculture Sector Council

Maldives National Skills Development Authority

Umar Zahir Office Building, 5th Floor,

Orchid Ma higu, HulhuMale', Republic of Maldives.

Date of Endorsement:04-01-2024

TECHNICAL SUPPORT

#	Name	Designation	Organization
01			
02			

#	Name	Designation	Organization
01	Miruzza Mohamed	Director	Ministry of Environment Climate Change and Technology
02	Ismail Rafeeu	-	-
03	Adnan Ali	Board Director / Advisor	Horizon Fisheries
04	Azumeel Moosa	Industry Expert	-
05	Ahmed Azad	Expert Lecturer	Maldives Polytechnic
06	Abdulla Mohamed	Industry Expert	-
07	Thoha Rafeeu	Owner	My Cool
08	Miruzza Mohamed	Director	Ministry of Environment Climate Change and Technology

VERSION	DEVELOPER	DATE	STANDARD CODE
V1	VETAIMC & FJS	VETAIMC & FJS	FNA-17L4-V2-24

Standard Development Process

The development of the “National certificate-4 in Refrigeration and Air Conditioning Mechanic” Standard involved a comprehensive study of occupations related to refrigeration and air conditioning across Maldivian workplaces. Job descriptions and international trends were analysed to draft the initial Standard. This document is being refined through a Technical Panel (TP) comprising industry experts and professionals working in refrigeration and air conditioning within the Maldives, ensuring incorporation of competencies and edits. The TP provided technical input, recommending changes to the standard, ensuring it accurately reflects the required competencies in the field. The approved Final Draft will then be submitted to the Employment Sector Council for endorsement and validation. A brief report detailing the compilation process will accompany the Standard for the Council's review, and any recommended changes will be addressed before the final endorsement.

With the endorsement from the Employment Sector Council, the finalised National Standard for Refrigeration and Air Conditioning Mechanic will be submitted to the Maldives Qualification Authority (MQA) for final approval. Upon receiving MQA approval, the standard will be officially published on the Maldives National Skills Development Authority (MNSDA) website. This publication will enable training providers in the Maldives to utilise the standard for delivering the Refrigeration and Air Conditioning program, ensuring its widespread implementation across the country.

Description of “Refrigeration and Air Conditioning Mechanic”

The standard serves as a foundational guideline designed to enhance essential skills across a range of technical and mechanical industries. This program is dedicated to equipping individuals with fundamental competencies crucial for proficient Refrigeration and Air Conditioning (RAC) operations. Participants will gain practical insights into core techniques, tools, and practices related to the installation, maintenance, and repair of refrigeration and air conditioning systems.

The certification acts as an entry point for professionals venturing into the field of Refrigeration and Air Conditioning, providing a robust foundation in the essential skills and safety practices. It prepares learners to work effectively in real-world environments and supports the development of a skilled workforce capable of meeting the demands of residential, commercial, and industrial cooling systems in the Maldives.

Proposed Qualification Titles

Following are the recommended titles by the selected internal expert team of FJS for the National Certificate-IV in Refrigeration and Air Conditioning Mechanic.

1. Nil

Job opportunities upon completion of “National Certificate-4 in Refrigeration and Air Conditioning Mechanic”

Upon successful completion of the National Certificate-IV in Refrigeration and Air Conditioning Mechanic, students can work in the following jobs.

1. *Refrigeration and Air Conditioning Mechanic*
2. *Applications in Commercial Refrigeration*

3. Applications in Industrial Refrigeration

KEY FOR CODING

Coding Competency Standards and Related Materials

DESCRIPTION	REPRESENTED BY
Industry Sector as per ESC (Three letters)	Construction Sector (CON) Fisheries and Agriculture (FNA) Transport Sector (TRN) Tourism Sector(TOU) Social Sector (SOC) Foundation (FOU)
Standard Number - Occupation with in an industry sector	Two digits 01-99
Common Competency	CM
Core Competency	CC
Unit Number - Occupation with in an Standard	Three digits 01-99
MNQF level of qualification	L1, L2, L3, L4 etc.
Version Number	V1, V2 etc.
Separator	-
Year of Last Review of standard, qualification	Two digits responding to the year of last review, example 23 for the year 2023
Qualification Code	Refers to Standard code in cover page

1. Endorsement Application for Qualification 02		
2. NATIONAL CERTIFICATE IV IN REFRIGERATION AND AIR CONDITIONING MECHANIC		
3. Qualification code: FNA-17L4-V2-24		Total Number of Credits: 143
4. Purpose of the qualification The National Certificate-4 in refrigeration and air conditioning mechanic certifies the holder of this qualification has acquired the competencies listed in section 5		
5. Regulations for the qualification		National Certificate IV in Refrigeration and Air Conditioning Mechanic will be awarded to those who are competent in units 1+2+3+4+5+6+7+8+9+10+11+12+13+14+15+16+17+18+19
6. Schedule of Units		
Unit No.	Unit Title	Code
Common Competencies		
01	Lead workplace communication	FNA-17-CM01-V2-24
02	Apply critical thinking and problem solve techniques in the workplace	FNA-17-CM02-V2-24
03	Propose methods of applying learning and innovation in the organization	FNA-17-CM03-V2-24
04	Lead team	FNA-17-CM04-V2-24
05	Work in a diverse environment	FNA-17-CM05-V2-24
06	Use information systematically	FNA-17-CM06-V2-24
07	Evaluate occupational safety and health work practices	FNA-17-CM07-V2-24
Core Competencies		
08	Prepare for servicing and maintenance	FNA-17-CC06-V2-24
09	Install the refrigeration and air conditioning equipment	FNA-17-CC07-V2-24
10	Test installation of refrigeration and air conditioning equipment	FNA-17-CC08-V2-24
11	Perform installation of window and split type air conditioners	FNA-17-CC09-V2-24
12	Repair Air Window & Split Type Air Conditioners	FNA-17-CC10-V2-24
13	Diagnose the RAC equipment	FNA-17-CC11-V2-24
14	Troubleshoot and repair RAC equipment	FNA-17-CC12-V2-24
15	Performs installation of Central air Conditioners	FNA-17-CC13-V2-24
16	Operate & Maintain Central Air Conditioning Systems	FNA-17-CC14-V2-24
17	Dismantle the RAC equipment	FNA-17-CC15-V2-24
18	Classify the decommissioned equipment and materials	FNA-17-CC16-V2-24

19	Prepare estimate on installations and /or maintenance of refrigeration and air conditioning systems	FNA-17-CC17-V2-24
7. Accreditation requirements		The training provider should have a workshop or similar training facility to provide the trainees the hands-on experience related to this qualification
8. Recommended sequencing of units		As appearing under the section 06

Unit Details

Unit No.	Unit Title	Code	Level	No. of credits	Credit hours	Contact hours
01	Lead workplace communication	FNA-17-CM01-V2-24	III	2	20	10
02	Apply critical thinking and problem solve techniques in the workplace	FNA-17-CM02-V2-24	III	2	20	10
03	Propose methods of applying learning and innovation in the organization	FNA-17-CM03-V2-24	III	2	20	10
04	Lead team	FNA-17-CM04-V2-24	III	2	20	10
05	Work in a diverse environment	FNA-17-CM05-V2-24	III	2	20	10
06	Use information systematically	FNA-17-CM06-V2-24	III	2	20	10
07	Evaluate occupational safety and health work practices	FNA-17-CM07-V2-24	III	4	40	20
08	Prepare for servicing and maintenance	FNA-17-CC06-V2-24	III	10	100	50
09	Install the refrigeration and air conditioning equipment	FNA-17-CC07-V2-24	III	12	120	60
10	Test installation of refrigeration and air conditioning equipment	FNA-17-CC08-V2-24	III	9	90	45
11	Perform installation of window and split type air conditioners	FNA-17-CC09-V2-24	III	10	100	50
12	Repair Air Window & Split Type Air Conditioners	FNA-17-CC10-V2-24	III	8	80	40
13	Diagnose the RAC equipment	FNA-17-CC11-V2-24	IV	14	140	70
14	Troubleshoot and repair RAC equipment	FNA-17-CC12-V2-24	IV	14	140	70
15	Performs installation of Central air Conditioners	FNA-17-CC13-V2-24	IV	14	140	70
16	Operate & Maintain Central Air Conditioning Systems	FNA-17-CC14-V2-24	IV	9	90	45
17	Dismantle the RAC equipment	FNA-17-CC15-V2-24	IV	9	90	45
18	Classify the decommissioned equipment and materials	FNA-17-CC16-V2-24	IV	9	90	45

19	Prepare estimate on installations and /or maintenance of refrigeration and air conditioning systems	FNA-17-CC17-V2-24	IV	9	90	45
Total				143	1430	715

Packaging of National Qualifications:

National certificate IV in Refrigeration and Air Conditioning Mechanic will be awarded to those who are competent in units

1+2+3+4+5+6+7+8+9+10+11+12+13+14+15+16+17+18+19

Qualification Code: FNA-17L4-V2-24

COMPETENCY BASED ASSESSMENT

The final assessment of the National Competency-Based Programmes conducted by the Maldives National Skills Development Authority (MNSDA) is a competency-based assessment.

The Competency-Based Assessment ensures that the students' performance meets the requirements specified in the National Competency Standards (NCS). This assessment approach is designed to verify that graduates are job-ready and meet established occupational competency requirements within their respective fields.

Eligibility for Final Assessment

To be eligible for the final Competency-Based Assessment, students must fulfil the following conditions:

- achieve a **minimum of 80%** attendance
- deemed competent in each of the units of the programme in the pre-assessment

Competency-Based Assessment Process

Upon submission of the Pre-assessment report by the training provider, MNSDA will check for all the necessary supporting documents and conduct Competency-Based Assessment through a National Assessor registered with MNSDA. It is important to note that any trainer involved in the training process is **not permitted** to conduct the assessment to maintain impartiality and integrity of the process.

The final Competency-Based Assessment conducted by MNSDA includes both:

- **Theory:** Evaluating students' knowledge and understanding of key theoretical aspects of the competency.
- **Practical:** Assessing hands-on skills and application of knowledge in real-world or simulated environments.

Once the assessment is completed, the National Assessor will send the Competency-Based Assessment Report to MNSDA.

Competency Status Requirement

For certification to be granted, the student must be officially declared "**Competent**" in each of the units of the programme by the National Assessor.

Conclusion

Competency-Based Assessment is a critical component in ensuring the quality and credibility of technical and vocational skills-based training. By adhering to the outlined procedure, MNSDA upholds the standards required to certify students who are fully prepared to meet industry demands.