



Maldives National Skills Development Authority



National Competency Standard for Electrical Installation and Maintenance

Standard Code: CON-01L4-V2-24

Qualification Name: National Certificate IV in Electrical Installation and Maintenance

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 Competency Standards (NCS) revised through the Maldives Enhancing Employability and Resilience of Youth (MEERY) project accentuates the commitment to updating and sustaining contemporary skill sets aligned precisely with industry demands. Deliberate efforts to revise existing NCS, 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.

The active engagement of Technical Panels and Employment Sector Councils in the NCS 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 IV in Electrical Installation and Maintenance by the MNSDA, MEERY, and the Maldives Institute of Technology 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	Organisation
01	Ahmed Thalhath	Director General	Ministry of National Planning, Housing and Infrastructure
02	Niushad Saeed	Research Analyst	Ministry of Economic Development
03	Adnan Haleem	Secretary General	Maldives National Association of Construction Industry
04	Mohamed Rasheed	Director	Housing Development Corporation
05	Mohamed Waheed	Assistant Lecturer	Maldives Polytechnic
06	Hussain Shiyam	Industry Expert	Industry Expert
07	Ibrahim Shareef Hassan	Industry Expert	Industry Expert
08	Mohamed Yoosuf	Professional Member	Architects Association of Maldives
09	Shakeeba Ali	Director General	Maldives National Skills Development Authority
National Occupational Standard has been endorsed by:			
 <p>Adnan Haleem Chairperson Construction Sector Council</p> <p>Maldives National Skills Development Authority Umar Zahir Office Building, 5th Floor, Orchid Ma higun, HulhuMale' , Republic of Maldives.</p>			
Date of Endorsement: 9/10/2023		Date of Revision: 9/10/2023	

TECHNICAL SUPPORT			
#	Name	Designation	Organisation
01			
02			

TECHNICAL PANEL MEMBERS			
#	Name	Designation	Organisation
01	SanaullahShakeeb	Engineer	Maldives Airports Company Limited
02	Ali Nafaah Mohamed	Assistant Engineer	STELCO
03	Yaiesh Musthafa	Engineer	Utility Regulatory Authority
04	Nahid Mohamed	Lecturer/Technician	Polytechnic/Department of Judicial Administration
05			
06			
07			
08			
09			

VERSION	DEVELOPER	DATE	STANDARD CODE
V2	Maldives Institute of Technology	12/08/2023	CON-01L4-V2-24

Standard Review Process

To begin with, electrician occupation competencies were profiled through study of the occupations across the Maldivian workplaces aligned to the principles of "Functional Analysis", a methodology used for reviewing Competency Standards. Referred occupational profiling process compared existing competency units incorporated within the National Competency Standard of Level IV in Electrical Installation and Maintenance program.

Draft Review of the occupational standard is then compiled and submitted to the Technical Panel (TP) organised by the Maldives National Skills Development Authority (MNSDA). The Draft Standard is then edited based on comments from TP members under the direct observation of MNSDA. With series of reviewing and editings, TP approved standard is then tabled at Employment Sector Council (ESC) meeting for endorsement.

All the Standards of MNSDA are endorsed from the ESC before being published on its website.

Description of “Electrical Installation and Maintenance”

Electrical Installation and Maintenance is designed to equip individuals with sophisticated competencies essential for comprehensive electrical installation and maintenance. Participants will explore into advanced techniques and practices, gaining insights into complex wiring systems, troubleshooting, and advanced maintenance procedures.

This certification serves as a pathway for professionals seeking to enhance their expertise in electrical installation and maintenance, providing advanced skills crucial for addressing the intricate demands of the field

Recommended changes to the existing National Certificate IV in Electrical Installation and Maintenance Standard

With recommendations from the Technical Panel and ESC, following changes have been brought to this National Certificate IV in Electrical Installation and Maintenance Standard.

1. *Strengthen soft skills and recommended to include common modules used in the current Competency Standards of MNSDA*
2. *Inclusion of a dedicated unit “Perform LV Industrial electrical installation “, aimed at enhancing low-voltage electrical installation practices, in alignment with the standards established by the Utility Regulatory Authority (URA) of the Maldives.*
3. *The following novel Units pertaining to the Electrician trade are proposed for incorporation:*
 - ✓ *Perform LV Industrial electrical installation*
 - ✓ *Operate and maintain of power generation system (renewable energy)*
 - ✓ *Prepare Estimates Material requirement for industrial electrical installations*
 - ✓ *Perform Inspection Testing, service and maintenance*
 - ✓ *Perform control logic design and installation*
 - ✓ *Apply industrial Automation*
 - ✓ *Apply basic fundamental of electronic*
 - ✓ *Perform Installation and maintenance of Electrical Machine*
4. *In addition to that, a module to empower participants with conceptual knowledge is also included*

Job opportunities upon completion of “National Certificate IV in Electrical Installation and Maintenance”

Upon successful completion of the National certificate IV in Electrical Installation and Maintenance, students can work in the following jobs.

1. *Electricians*
2. *Senior Electrician*
3. *Technician*
4. *Powerhouse Supervisor*

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) Information, Communication and Technology (ICT) 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 a 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 01		
2. NATIONAL CERTIFICATE IV IN ELECTRICAL INSTALLATION AND MAINTANANCE		
3. Qualification code: CON-01L4-V2-24		Total Number of Credits: 138
4. Purpose of the qualification The holders of this qualification will be competent to work in the Construction Sector as a domestic electrician. The level IV qualification presented here will facilitate preparing students to the advanced level workplace tasks and the competency units are mapped in such a way to fulfil the knowledge and skills requirements of the “Electrician” occupation within the local construction Industry.		
5. Regulations for the qualification		National Certificate IV in the occupation of Electrical Installation and Maintenance 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
6. Schedule of Units		
Unit No.	Unit Title	Code
Common Competencies		
01	Write technical reports	CON-01-CM08-V2-24
02	Apply and maintain occupational safety and health	CON-01-CM09-V2-24
03	Carry out data entry and retrieval procedures	CON-01-CM10-V2-24
04	Respond to fire	CON-01-CM07-V2-24
Core Competencies		
05	Apply mathematics for engineering	CON-01-CC08-V2-24
06	Prepare basic technical drawing	CON-01-CC09-V2-24
07	Apply accident-emergency procedures	CON-01-CC10-V2-24
08	Apply science for electrical operations	CON-01-CC11-V2-24
09	Perform LV Industrial electrical installation	CON-01-CC12-V2-24
10	Operate and maintain of power generation system	CON-01-CC13-V2-24
11	Prepare estimates material requirement for industrial electrical installations	CON-01-CC14-V2-24
12	Perform inspection testing, service and maintenance	CON-01-CC15-V2-24
13	Perform control logic design and installation	CON-01-CC16-V2-24
14	Apply industrial automation	CON-01-CC17-V2-24
15	Apply basic fundamental of electronics	CON-01-CC18-V2-24
16	Perform installation and maintenance of electrical machine	CON-01-CC19-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 and 120 hours of Industrial experience
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	Write technical reports	CON-01-CM08-V2-24	IV	04	40	20
02	Apply and maintain occupational safety and health	CON-01-CM09-V2-24	IV	15	150	75
03	Carry out data entry and retrieval procedures	CON-01-CM10-V2-24	IV	10	100	50
04	Respond to fire	CON-01-CM07-V2-24	IV	03	30	15
05	Apply mathematics for engineering	CON-01-CC08-V2-24	IV	07	70	35
06	Prepare basic technical drawing	CON-01-CC09-V2-24	IV	05	50	25
07	Apply accident-emergency procedures	CON-01-CC10-V2-24	IV	06	60	30
08	Apply science for electrical operations	CON-01-CC11-V2-24	IV	06	60	30
09	Perform LV Industrial electrical installation	CON-01-CC12-V2-24	IV	15	150	75
10	Operate and maintain of power generation system	CON-01-CC13-V2-24	IV	07	70	35
11	Prepare estimates material requirement for industrial electrical installations	CON-01-CC14-V2-24	IV	10	100	50
12	Perform inspection testing, service and maintenance	CON-01-CC15-V2-24	IV	10	100	50
13	Perform control logic design and installation	CON-01-CC16-V2-24	IV	10	100	50
14	Apply industrial automation	CON-01-CC17-V2-24	IV	10	100	50
15	Apply basic fundamental of electronics	CON-01-CC18-V2-24	IV	10	100	50
16	Perform installation and maintenance of electrical machine	CON-01-CC19-V2-24	IV	10	100	50
Total				138	1380	690

Packaging of National Qualifications:

National certificate IV in Electrical Installation & Maintenance (domestic) 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

Qualification Code: CON-01L4-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.