



Maldives National Skills Development Authority



National Competency Standard for School Laboratory Techniques

Standard Code: SOC-08L4-V2-24

Qualification Name: National Certificate IV in School Laboratory Techniques

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 School Laboratory Techniques 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	Saudath Afeef	Director	Ministry of Youth Empowerment, Information and Arts
02	Miruzza Mohamed	Deputy Director General	Ministry of Climate Change, Environment and Energy
03	Alfeen Adnan Ismail	Allied Health Council Member	Maldives Allied Health Council
04	Abdul Wahid Mohamed	Director	FENAKA Corporation Limited
05	Ali Shareef	Director	Villa College / Centre for Foundation Studies
06	Salma Hassan	Industry Expert	-
07	Hamid Abdul Ghafoor	Industry Expert	-
08	Shiuna Khalid	Assistant Director	Ministry of Sports, Fitness and Recreation
09	Mariyam Nizama	Director	Maldives National Skills Development Authority
National Occupational Standard has been endorsed by:			
 <p>Hamid Abdul Ghafoor Chairperson Social Sector Council</p>			
<p>Maldives National Skills Development Authority Umar Zahir Office Building, 5th Floor, Orchidmaa Hingun, Hulhumale', Republic of Maldives.</p>			
Date of Endorsement:13.02.2024		Date of Revision:	

TECHNICAL SUPPORT			
#	Name	Designation	Organisation
01			
02			

TECHNICAL PANEL MEMBERS			
#	Name	Designation	Organisation
01	Fathimath Zimna	Lecturer	Maldives National University
02	Mohamed Eyman	Assistant General Manager /Head of quality Assurance	MWSC
03	Dr. Ahmed Mohamed	Maldives National University	Assistant Professor
04	Mariyam Areesha	Senior laboratory technologist	IGMH

VERSION	DEVELOPER	DATE	STANDARD CODE
V2	Maldives Institute of Technology	31.12.2023	SOC-08L4-V2-24

Standard Review Process

To begin with School Laboratory Techniques 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-4 in School Laboratory Techniques 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 “School Laboratory Techniques”

National Certificate IV in School Laboratory Techniques presents a structured pathway for students embarking on this educational journey, designed to enhance and expand their skill set. This program offers a thorough exploration of various laboratory methodologies, equipping learners with a solid foundation in both theory and practice.

This certification facilitates the acquisition of practical skills but also encourages critical thinking, problem-solving, and innovation within laboratory science.

Recommended changes to the existing National Certificate IV in School Laboratory Techniques Standard

Following are the changes recommended by the selected internal expert team of MIT for the National Certificate-4 in School Laboratory Techniques Standard.

1. *Strengthen soft skills and recommended to include common modules used in the current Competency Standards of MNSDA*
2. *Incorporation of three new units to cover experiments related to the subjects of physics, biology and chemistry*
3. *Eight existing units underwent modifications to ensure their alignment with current industry standards and practices*

Job opportunities upon completion of “National Certificate IV in School Laboratory Techniques”

Upon successful completion of the National certificate IV in School Laboratory Techniques, students can work in the following jobs.

1. *School Laboratory Technician*

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 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 01		
2. NATIONAL CERTIFICATE IV IN SCHOOL LABORATORY TECHNIQUES		
3. Qualification code: SOC-08L4-V2-24		Total Number of Credits: 121
4. Purpose of the qualification The holders of this qualification will possess the practical abilities and theoretical understanding required to maintain laboratory equipment, prepare materials for experiments, ensure safety protocols are followed, and provide assistance to educators and students during laboratory sessions. This qualification aims to provide individuals with the knowledge, skills, and competencies necessary to effectively support and assist in the management and operation of science laboratory facilities within educational institutions.		
5. Regulations for the qualification		National Certificate IV in School Laboratory Techniques the occupation of School Laboratory Techniques will be awarded to those who are competent in units 1+2+3+4+5+6+7+8+9+10+11+12+13+14
6. Schedule of Units		
Unit No.	Unit Title	Code
Common Competencies		
01	Undertake technical writing and presentation	SOC-08-CM01-V2-24
02	Apply science for laboratory technician	SOC-08-CM02-V2-24
03	Apply mathematics for laboratory technician	SOC-08-CM03-V2-24
04	Demonstrate basic teaching skills	SOC-08-CM04-V2-24
Core Competencies		
05	Work safely in accordance with defined policies and procedures	SOC-08-CC09-V2-24
06	Apply quality systems and continuous improvement process	SOC-08-CC10-V2-24
07	Prepare standard and stock solution	SOC-08-CC11-V2-24
08	Prepare reagents	SOC-08-CC12-V2-24
09	Respond to laboratory emergencies	SOC-08-CC13-V2-24
10	Perform biological and microbiological tests and procedures	SOC-08-CC14-V2-24
11	Perform chemical and mechanical tests and procedures	SOC-08-CC15-V2-24
12	Perform standard calibrations	SOC-08-CC16-V2-24
13	Apply laboratory maintenance	SOC-08-CC17-V2-24
14	Monitor stocks of laboratory materials and equipment	SOC-08-CC18-V2-24
7. Accreditation requirements:		The training provider should have made arrangements to ensure students are provided with adequate theory and practicals for them to develop all the required knowledge and skills stipulated in the National Competency Standard.

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	Undertake technical writing and presentation	SOC-08-CM01-V2-24	IV	04	40	20
02	Apply science for laboratory technician	SOC-08-CM02-V2-24	IV	06	60	30
03	Apply mathematics for laboratory technician	SOC-08-CM03-V2-24	IV	05	50	25
04	Demonstrate basic teaching skills	SOC-08-CM04-V2-24	IV	10	100	50
05	Work safely in accordance with defined policies and procedures	SOC-08-CC09-V2-24	III	06	60	30
06	Apply quality systems and continuous improvement process	SOC-08-CC10-V2-24	III	05	50	25
07	Prepare standard and stock solution	SOC-08-CC11-V2-24	III	04	40	20
08	Prepare reagents	SOC-08-CC12-V2-24	IV	05	50	25
09	Respond to laboratory emergencies	SOC-08-CC13-V2-24	IV	06	60	30
10	Perform biological and microbiological tests and procedures	SOC-08-CC14-V2-24	IV	20	200	100
11	Perform chemical and mechanical tests and procedures	SOC-08-CC15-V2-24	IV	20	200	100
12	Perform standard calibrations	SOC-08-CC16-V2-24	IV	20	200	100
13	Apply laboratory maintenance	SOC-08-CC17-V2-24	III	04	40	20
14	Monitor stocks of laboratory materials and equipment	SOC-08-CC18-V2-24	IV	06	60	30
Total				121	1210	605

Packaging of National Qualifications:

National certificate IV in School Laboratory Techniques will be awarded to those who are competent in units 1+2+3+4+5+6+7+8+9+10+11+12+13+14

Qualification Code: SOC-08L4-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.