



Maldives National Skills Development Authority



National Competency Standard for Assistant Utility Laboratory Technician

Standard Code: CONS06V1/21

Qualification Name: National Certificate III in Utility Laboratory Technician Services
Qualification Code: CONS06Q1L3V1/21

PREFACE

Technical and Vocational Education and Training (TVET) Authority was established with the vision to develop a TVET system in the Maldives that is demand driven, accessible, beneficiary financed and quality assured, to meet the needs of society for stability and economic growth, the needs of Enterprise for a skilled and reliable workforce, the need of young people for decent jobs and the needs of workers for continuous mastery of new technology.

TVET system in the Maldives flourished with the Employment Skills Training Project (ESTP) funded by ADB with the objective of increasing the number of Maldivians, actively participating in the labor force, employed and self-employed. The Project supported expansion of demand driven employment-oriented skills training in priority occupations and to improve the capacity to develop and deliver Competency Based Skill Training (CBST). The project supported delivery of CBST programs to satisfy employer demand-driven needs. Currently CBST is offered for six key sectors in the Maldives: Tourism, Fisheries and Agriculture, Transport, Construction, Social and the Information and Technology sectors. These sectors are included as priority sectors that play a vital role in the continued economic growth of the country.

The National Competency Standards (NCS) provides the base for initiating the training in those topics. The NCS are endorsed by the Employment Sector Councils of the respective sectors and validated by the Maldives Qualification Authority. These NCS were developed in consultation with Employment Sector Councils representing employers. They were designed using a consensus format endorsed by the Maldives Qualifications Authority (MQA) to maintain uniformity of approach and the consistency of content amongst occupations. This single format also simplifies benchmarking the NCS against relevant regional and international standards. NCS specify the standards of performance of a competent worker and the various contexts in which the work may take place. NCS also describes the knowledge, skills and attitudes required in a particular occupation. They provide explicit advice to assessors and employers regarding the knowledge, skills and attitudes to be demonstrated by the candidates seeking formal recognition for the competency acquired following training or through work experience. By sharing this information, all participants in the training process have the same understanding of the training required and the standard to be reached for certification. Certification also becomes portable and can be recognized by other employers and in other countries with similar standards.

In an effort to accelerate the provision of water supply and sewerage services, the Government of Maldives has placed great emphasis towards increasing financial resources from the national budget and much needed institutional reforms in the water and sanitation sector. With the additional resource received from international development and donor agencies significant improvement have been made in the sector. The Government received a grant from Green Climate Fund (GCF) for the project which is being jointly implemented by the Government of Maldives and United Nations Development Programme (UNDP) to Support vulnerable communities in Maldives to manage climate change-induced water shortages.

An important aim of the project is to strengthen the management and institutional capacity of the Water and Sanitation Sector which ensures the sustainability of the water services implanted and contributes to the national policy goals and strategies related to sector capacity development. This is being achieved by encouraging and supporting local educational institutions to develop courses, conduct technical training and educational programs.

TVET Authority and the Ministry of Environment have signed a Memorandum of Understanding (MoU) to setup the National Competency standards for plumbing, water and sewerage system operations and utility laboratory services. The development of these Standards has been assigned to the Maldives Institution of Technology (MIT) with TVET authority reviewing and approving the material.

NCS are the foundation for the implementation of the TVET system in Maldives. They ensure that all skills, regardless of where or how they were developed can be assessed and recognized. They also form the foundation for certifying skills in the Maldives National Qualification Framework (MNQF).

It is with great pleasure we present these National Competency Standards (NCS) for plumbing, water and sewerage system operation and utility laboratory services, developed by the Ministry of Environment in coordination with the Ministry of Higher Education under the support of Green Climate Fund project “Supporting vulnerable communities in Maldives to manage climate change-induced water shortages”.



Mohamed Hashim

Minister of State for Higher Education

TVET Authority



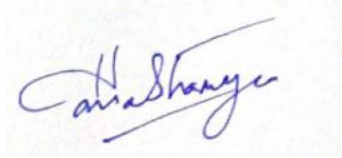

Ahmed Nisham

Quality Assurance Consultant

TVET Authority

TECHNICAL PANEL MEMBERS			
#	Name	Designation	Organization
01	Mohamed Siraj	Director	Ministry of Planning
02	Mohamed Fazeeh	Assistant Director	Ministry of Environment
03	Mohamed Ibrahim Jaleel	Assistant Director	Ministry of Environment
04	Adam Mubeen	Assistant Director	Utility Regulatory Authority
05	Mohamed Eyman		Male' Water and Sewerage Company
06	Hussain Shiyam	Civil Engineer	Association of Civil Engineers
07	Abdulla Hussain Rasheed	Executive Member	Association of Civil Engineers
08	Mohamed Saif Saeed		Association of Civil Engineers
09	Dr Shazla Mohamed	Dean (FEST)	Maldives National University
10	Suma Khalid	Lecturer	FENAKA
11	Abdulla Sameen	Engineer	STELCO
12	Mohamed Siraj	Director	Ministry of Planning

VERSION	DEVELOPER	DATE	STANDARD CODE
V1	Maldives Institute of Technology	15 th February 2021	CONS06V1/21

EMPLOYMENT SECTOR COUNCILS			
#	Name	Designation	Organization
01	Hassan Shameem	Managing Director	INOCA Pvt Ltd
02	Mohamed Naseer	President	Contractors Association
03	Ismail Ameen	Professional Member	Architect Association of Maldives
04	Mohamed Musthafa	Director General	Ministry of Environment and Energy
05	Mohamed Rasheed	Assistant Director, Project Management and Development	Housing Development Corporation
06	Adnan Haleem	Secretary General	Maldives National Association of Construction Industry
07	Ahmed Musthaq	General Manager Engineering and Maintenance	Maldives Airports Company Limited
08	Ahmed Migdhad	Director	Ministry of Economic Development
09	Hussain Shiyam	Civil Engineer	Association of Civil Engineers
10	Mariyam Abdul Rahman	Director	Ministry of Youth, Sports and Community Empowerment
11	Ibrahim Shareef Hassan	Manager of Academic and Student Structure Board	Maldives Institute of Technology (MIT)
12	Mohamed Haikal Ibrahim	Head of Department Engineering	Maldives National University
13	Mohamed Shahud	Assistant Engineer	Ministry of National Planning
14	Muaz Ibrahim	Assistant Manager Projects	MWSC
15	Mohamed Waheed	Assistant Lecturer Grade 2	Maldives Polytechnic
National Competency Standard has been endorsed by:			
 Hassan Shameem Chairperson Construction Employment Sector Council		 Mohamed Naseer Vice-Chairperson Construction Employment Sector Council	
Technical and Vocational Education and Training Authority Ministry of Higher Education Handhuvaree Hingun, M. World Dream Male', Maldives			
Date of Endorsement: 15 th February 2021		Date of Revision: NA	

Standard Development Process

To begin with, Utility Laboratory Technician occupations were profiled through study of the occupation across Maldivian workplaces. During the study, utility enterprises and their relevant occupations were reviewed and the job descriptions were further studied. In addition to that, current trends of occupations internationally were also reviewed. These processes led to the development of the Draft Occupational Standard.

Referred draft occupational standard will be submitted through the TVETA to a team of Technical Panel (TP) selected from the Maldivian workplaces to review the Utility Laboratory Technician. Members of the TP will provide technical support by recommending changes to the Utility Laboratory Technician Standard through incorporation of units of competencies and editing of the already included competency units. Purpose of this process is to develop a standard that reflects authentic work practices of Utility Laboratory Technician across the utility enterprises of the Maldives. Technical Panel meetings will continue in reviewing the Utility Laboratory Technician Standard until the Final Draft is drawn which is agreed and accepted by all the participating members.

Final Draft of Utility Laboratory Technician Standard approved by the TP will then be submitted to the Construction Employment Sector Council for endorsement and validation. A brief report on how the National Occupational Standard of Utility Laboratory Technician reflecting the process of compilation will be presented to the Construction Employment Sector Council together with the standard. Council members will further review and If Construction ESC recommends any change, MIT is required to bring those changes and once agreeable, Utility Laboratory Technician Standard will be endorsed by the Council.

With the endorsement from the Construction Employment Sector Council, final document of the National Occupational Standard of Utility Laboratory Technician will be submitted to the Maldives Qualification Authority (MQA) for final approval. With approval from MQA, the National Occupational Standard of Utility Laboratory Technician will be published on TVETA website, to be used by training providers in delivering Utility Laboratory Technician programs across the Maldives.

Description of “Utility Laboratory Technician”

Lab Technicians play an important role within the Public Utility Sector of the Maldives as they undertake testing of treated water by the different utility providers. Referred occupations is vital to ensure water produced by the various public and private utility enterprises remained to be of highest quality and pass the standards set by the Environment Protection Agency (EPA) of the Maldives. National Certificate III in Utility Laboratory Technician is mapped and organized in such a way to

ensure those competent in the referred qualification will have the knowledge and skills to contribute positively to the local construction industry.

Prospective Job opportunities

Upon successful completion of the National Certificate III in Utility Laboratory Technician students can work in the following jobs.

- Assistant Utility Laboratory Technician
- Utility Laboratory Assistant

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)
Competency Standard	S
Occupation with in an industry sector	Two digits 01-99
Unit	U
Common Competency	CR
Core Competency	CM
Optional / Elective Competency	OP
Assessment Resources Materials	A
Learning Resources Materials	L
Curricular	C
Qualification	Q1, Q2 etc.
MNQF level of qualification	L1, L2, L3, L4 etc.
Version Number	V1, V2 etc.
Year of Last Review of standard, qualification	By “/” followed by two digits responding to the year of last review, example /21 for the year 2021

1. Endorsement Application for Qualification 01**2. NATIONAL CERTIFICATE III IN UTILITY LABORATORY TECHNICIAN****3. Qualification code:** CONS06Q1L3V1/21**Total Number of Credits: 55****4. Purpose of the qualification**

The Certificate III in Utility Laboratory Technician provides comprehensive training for Laboratory technicians perform straightforward laboratory work. They follow set procedures and recipes, and apply well developed technical skills and basic scientific knowledge. Utility Laboratory Technician generally work inside a laboratory but may also perform technical tasks in the field or within production plants. They may also perform a range of laboratory maintenance and office tasks.

5. Regulations for the qualification

National Certificate III in Utility Laboratory Technician 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	Apply Occupational Health and Safety requirements	CONCM04V1/21
02	Apply work ethics and optimize professionalism	CONCM01V2/20
03	Practice effective workplace communication	CONCM05V1/21
04	Perform computer operations	CONCM03V2/20
05	Provide first aid	CONCM06V1/21
06	Respond to fire	CONCM07V1/21
Core Competencies		
07	Apply science in water testing	CONS06CR01V1/21
08	Apply mathematics in water testing	CONS06CR02V1/21
09	Handle dangerous goods/hazardous substances	CONS06CR03V1/21
10	Work safely with instruments	CONS06CR04V1/21
11	Record and present data	CONS06CR05V1/21
12	Perform calibration and maintenance of laboratory equipment	CONS06CR06V1/21
13	Sampling and prepare samples for testing	CONS06CR07V1/21
14	Prepare working solutions	CONS06CR08V1/21
15	Perform basic tests	CONS06CR09V1/21
7. Accreditation requirements		The training provider should place trainees in relevant industry or sector to provide the trainees the hands-on experience exposure related to this qualification.
8. Recommended sequencing of units		As appearing under the section 06

Units Details

#	Unit	Code	Level	No of credits	Credit Hours	Contact Hours
01	Apply Occupational Health and Safety requirements	CONCM04V1/21	III	04	40	20
02	Apply work ethics and optimize professionalism	CONCM01V2/20	III	03	30	15
03	Practice effective workplace communication	CONCM05V1/21	III	03	30	15
05	Perform computer operations	CONCM03V2/20	III	03	30	15
06	Provide first aid	CONCM06V1/21	III	05	50	25
07	Respond to fire	CONCM07V1/21	III	03	30	15
08	Apply science in water testing	CONS06CR01V1/21	III	03	30	15
09	Apply mathematics in water testing	CONS06CR02V1/21	III	03	30	15
10	Handle dangerous goods/hazardous substances	CONS06CR03V1/21	III	04	40	20
11	Work safely with instruments	CONS06CR04V1/21	III	03	30	15
12	Record and present data	CONS06CR05V1/21	III	04	40	20
13	Perform calibration and maintenance of laboratory equipment	CONS06CR06V1/21	III	04	40	20
14	Sampling and prepare samples for testing	CONS06CR07V1/21	III	06	60	30
15	Prepare working solutions	CONS06CR08V1/21	III	03	30	15
16	Perform basic tests	CONS06CR09V1/21	III	04	40	20
Total				55	550	275

Packaging of National Qualifications:

National Certificate III in Utility Laboratory Technician 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: CONS06Q1L3V1/21

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.