



# National Competency Standards Level-2 for Environmental Technology

"Environmental Services Attendant"



National Vocational and Technical Training Commission (NAVTTC),

Government of Pakistan





#### **ACKNOWLEDGEMENTS**

National Vocational and Technical Training Commission (NAVTTC) extends its gratitude and appreciation to representatives of business, industry, academia, government agencies, provincial TEVTAs, sector skill councils and trade associations who spared time and extended their expertise for the development of National Vocational Qualification for the trade of *Level-2* for *Environmental Technology "Environmental Services Attendant"*. This work would not have been possible without the technical support of the above personnel.

NAVTTC imitated development of CBT&A based qualifications for 200 traditional / hi-tech trades under the Prime **Minister's Hunarmand Pakistan Program**, focusing on Development & Standardization of 200 Technical & Vocational Education & Training (TVET) Qualifications. NAVTTC efforts have received full support from the Ministry of Federal Education and Professional Training which highly facilitated progress under this initiative.

It may not be out of place to mention here that all the experts of Industry, Academia and TVET experts of TEVTAs, BTEs and PVTC work diligently for making this qualification worthy and error free for which all credit goes to them. However, NAVTTC accepts the responsibility of all the errors and omissions still prevailing in the Qualification document.

It is also noteworthy that development of Skill Standards is a dynamic and ongoing process, and the developed skill standards needs periodic review and updating owing to the constant technological advancements, development in scientific knowledge, and growing experience of implementation at the grass root level as well as the demand of industry. NAVTTC will ensure to keep the qualifications abreast with the changing demands of both national and international job markets.

Sajid Baloch Executive Director (NAVTTC)





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# 1. Introduction

Climate change is already happening in the world today, and largely caused by human emissions of greenhouse gases. Changes to the earth's climate have included: warming of the atmosphere and oceans, reduced snow and ice, a rise in the level of the oceans, and changes in rainfall patterns and climate extremes. According to the latest research from the Intergovernmental Panel on Climate Change (IPCC), we have less than 11 years to make the transformation necessary to avoid the worst impacts of climate change. The level of carbon dioxide in the atmosphere would have to be cut by 45 per cent by 2030 to prevent global warming above 1.5°C In other words, the threshold at which the worst impacts of climate change could be averted.

This Environmental Technology program will provide you with theoretical and practical knowledge to protect, conserve and preserve the environment with a career as an environmental technologist. The program will give you the skills and knowledge you need to work in the laboratory or field as an Environmental Technologist. You will work for the protection, conservation and preservation of our natural environment. The course applies the chemical, physical and biological sciences to environmental issues, and relates these issues to various possible career paths.

The Environmental Services Attendant duties include cleaning, disinfecting and performing minor Inspection of work place. Duties also include managing waste, hazardous materials/chemicals and assist in safety and security at work place.

Being conscious of the emerging trends in the market, National Vocational & Technical Training Commission (NAVTTC) has developed competency standards in consultation with the stakeholders including academia, researchers, industry, chambers and TEVTAs for Level-2 Environmental Technology "Environmental Services Attendant" under National Vocational Qualifications Framework (NVQF). The competency standard document has been designed to help trainees develop professional skills and facilitate them in targeting job market on national and international level especially Middle East.





# 2. Purpose of the Qualification

The purpose of this qualification is to set the highly professional standards for "Environmental Services Attendant" in order to compete local and international job market. The specific objectives of developing these qualifications are as under:

- Empower the youth with globally required employable skills22
- Cater the immediate need of skilled workers in GCC countries
- Produce competitive Environmental Services Attendant
- Improve the quality and effectiveness of the training and assessment for Environmental Services Attendant

# 3. Date of Validation

The National Competency Standards Level-2 for Environmental Technology "Environmental Services Attendant" has been validated by the Qualifications Validation Committee (QVC) members on 29<sup>th</sup> April, 2022 and will remain valid for ten years i.e. 28<sup>th</sup> April, 2032.

#### 4. Date of Review

The National Competency Standards Level-2 for Environmental Technology "Environmental Services Attendant" has been validated by the Qualifications Validation Committee (QVC) members on 29<sup>th</sup> April, 2022 and shall be reviewed after three years 29<sup>th</sup> April, 2025

#### 5. Codes of Qualifications

The International Standard Classification of Education (ISCED) is a framework for assembling, compiling and analyzing cross-nationally comparable statistics on education and training. ISCED codes for these qualifications are assigned as follows:





ISCED Classifica	ISCED Classification					
Code	Description					
0712-EPT (1)	National Competency Standards Level-2 for Environmental					
	Technology					
	"Environmental Services Attendant"					
0712-EPT (2)	National Competency Standards Level-3 for Environmental					
	Technology					
	"Assistant Environmental Technician"					
0712-EPT (3)	National Competency Standards Level-4 for Environmental					
	Technology					
	"Environmental Technician""					
0712-EPT (4)	National Competency Standards Level-5 for Environmental					
	Technology					
	"Environmental Supervisor"					





# 6. Members of Qualification Development Committee

The following members participated in the qualification development process at PITAC, Lahore.

Date: 14-03-2022 to 18-03-2022

S#	Name	Designation	Organization
1.	Mr. Muhammad Aasim	Assistant Director Coordinator	NAVTTC
2.	Mr. Aijaz Ahmed Zia	Data Annotation Specialist/ DACUM Facilitator	Pointivo (USA)
3.	Mr. Abdul Qayum Memon	Assistant Director  Nomination from STEVTA	STEVTA
4.	Prof. Dr. Muhammad Hassan Mushtaq	Professor	EPPH, UVAS Lahore
5.	Dr. Furqan Awan	Lecturer	EPPH, UVAS Lahore
6.	Mr. Qais Raza	MSc Energy & Environmental Engineering Research Assistants	University of the Punjab
7.	Mr. Adeel Khan	Energy & Environmental Engineer Nomination from STEVTA	GPI Sachal, Karachi
8.	Mr. Naeem Ahmad	Quality Assurance Trainer and Auditor	Pak TIC Service Pvt. Ltd. Lahore
9.	Dr. Farzana Rashid	Professor	Lahore College for Women University (LCWU), Lahore
10.	Ms. Sheeba Bibi	CBT&A Expert	Bahria University, Islamabad





11.	Syed Abdulrehman	MSc Energy & Environmental	University of the Punjab
	Jaffery	Engineering Research	
		Assistants	
12.	Mr. Abid Shah	PhD Environmental Sciences	Philip Morris Mardan
		&Engineering Agronomist	Pakistan Ltd
13.	Mr. Hassaan Bin	Lecturer, Environmental	University of the Punjab
	Saadat	Sciences	





# 7. Qualification Validation Committee

The following members participated in the qualification development process at PITAC, Lahore.

Date: 25-04-2022 to 29-04-2022

S#	Name	Status in Committee	Organization
1.	Mr. Muhammad Aasim	Assistant Director Coordinator	NAVTTC
2.	Mr. Aijaz Ahmed Zia	Data Annotation Specialist/ DACUM Facilitator	Pointivo (USA)
3.	Ms. Mehwish Aisha	CBT Expert and Certified Assessor	Freelance Consultant
4.	Ms. Sumbal Ayaz	Co-DACUM Facilitator	Abacus Consultation
5.	Engr. Kifayatullah	HOD Representative B-TEVTA	GPI Khanozia
6.	Mr. Mushtaq Ahmed	Director M&E	P-TEVTA
7.	Engr. Rizwan Ahmed	Assistant Director (AA&R)	P-TEVTA
8.	Prof. Dr. Muhammad Hassan Mushtaq	Professor	EPPH, UVAS Lahore
9.	Mr. Adeel Khan	Energy &Environmental Engineering	Nomination from STEVTA
10.	Mr. Naeem Ahmed	Auditor	Pak TIC Services Pvt. Ltd Lahore
11.	Prof. Dr. Farzana	Professor	Lahore College for Women, Lahore





12.	Syed Adbul Rehman	MSc Energy &	University of the Punjab
	Jaffery	Environmental Engineering	
		Research Assistants,	
13.	Mr. Shaukat Ali Rana	Deputy Controller	PBTE
14.	Mr. Hassaan Bin Sadat	Lecture Environmental	University of the Punjab
		Sciences	

# 8. Entry Requirements

The entry requirement for National Competency Standards Level-2 for Environmental Technology "Environmental Services Attendant" is:

1. A person having Middle Certificate (8<sup>TH</sup> Class)

# 9. Regulation of the qualification and schedule of units

Not Applicable





# 10. Generic Modules with respective levels

Health and Safety LEVEL 2

Digital Skills LEVEL 3

Soft Skills





# 11. Summary of competencies

Sr	Competency	NVQF	Category	Estimated Contact Hours			Cr
No	Standards	Level	Category	Th	Pr	Total	Hr
1	Perform Housekeeping at Workplace	2	Technical	14	66	80	8
2	Follow Basic Health and Safety Practices at Workplace	2	Generic	20	90	110	11
3	Identify Tools, Equipment and Supplies related to Environmental Technology	2	Technical	15	75	90	9
4	Ensure safe storage of Tools, Equipment and Supplies at Workplace	2	Technical	15	75	90	9
5	Handle Hazardous Materials / Chemicals at Workplace	2	Technical	18	72	90	9
6	Inform in case of accident and emergency situations to concerned person	2	Generic	16	54	70	7
7	Adhere to organizational policies and regulations	2	Generic	22	48	70	7





Total		120	480	600	60
Percentage (%)		20	80		

Proposed Course Duration: 06 Months
Estimated Contact Hours: 600 Hours
Estimated Credit Hours: 60 Hours





# OCCUPATIONS AND LEVELS DESCRIPTOR

Level 2	Level 3	Level 4	Level 5

S#	Occupations	No of Modules/CS	Level	Occupation Credit Hours	Training duration
1.	Environmental Services Attendant	7	2	60	6 Months
2.	Assistant Environmental Technician	7	3	60	6 Months
3.	Environmental Technician	12	4	120	12 Months
4.	Environmental Supervisor	9	5	120	12 Months





# 12. Qualification Levelling and Packaging

#### Level 2

# (Environmental Services Attendant)

- 1. Perform Housekeeping at Workplace
- 2. Follow basic Health and Safety Practices at Workplace
- 3. Identify Tools, Equipment and Supplies related to Environmental Technology
- **4.** Ensure Safe Storage of Tools, Equipment and Supplies at Workplace
- 5. Handle Hazardous Materials/Chemicals at Workplace
- **6.** Inform in case of Accident and Emergency Situations to concerned Person
- 7. Adhere to Organizational Policies and Regulations





# 13. Detail of Qualifications and its Competency Standards

# A. <u>Technical Competency Standards</u>

# 0712-EPT-1: Perform Housekeeping at Workplace

#### Overview

This competency standard will provide knowledge and skills required for cleaning and disinfecting the workplace using chemicals and solutions, disposal of waste material and keeping materials / equipment in order.

Competency Units	Performance Criteria				
CU1. Prepare cleaning and	Trainee must be able to:				
disinfecting solutions	P1. Identify different cleaning solutions				
	P2. Identify different disinfecting solutions				
	P3. Follow Standard Operating Procedures (SOPs) for				
	preparation of solutions				
	P4. Follow prescribed ratio for preparation of the				
	solutions				
	P5. Make a new diluted solution as per requirement				
CU2. Clean the workplace	P1.Locate area to be cleaned				
	P2. Wear personal protective equipment, if required				
	P3. Clean dirty surfaces according to SOPs				
CU3. Disinfect the workplace	P1.Locate area to be disinfected				
	P2. Prepare required disinfecting solution as per				
	instructions given				
	P3. Perform disinfection according to SOPs				
	P4. Ensure ventilation of the area				
CU4. Gather waste material for	P1. Recognize types of the waste				
disposal	P2. Avoid mixing of different waste				





	P3. Dispose-off the waste properly
CU5. Keep equipment / material in	P1.Identify tools / equipment
order	P2. Handle the equipment properly
	P3.Lubricate the equipment, as required
	P4.Clean equipment after use
	P5.Inform the in-charge if any tool needs repair
	P6. Store the equipment/material safely after use

# **Knowledge & Understanding**

#### Trainee must be able to know and understand:

- Differentiate between cleaning and disinfection
- Enlist different cleaning tools and equipment
- Enlist names of cleaning and disinfecting solutions
- Describe the procedure of cleaning the workplace
- Define waste and its types
- Describe the procedure for proper disposal of waste
- Explain use of different tools / equipment

# **Tools and Equipment Required**

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Cleaning solutions
2.	Disinfecting chemicals
3.	Sprayer
4.	Mops
5.	Dusters





6.	Waste buckets
7.	Cleaning brush
8.	Warning signs
9.	Personal Protective Equipment (PPEs)

# Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

> Use different types of cleaning and disinfecting chemicals safely.





# 0712-EPT-2: Identify Tools, Equipment and Supplies related to Environmental Technology

#### Overview

This competency standard will provide knowledge and skills required about identification of tools, equipment and supplies related to Environmental Technology.

Competency Units		Performance Criteria
CU1.	Identify tools and equipment	Trainee must be able to:
ı	related to Environmental	P1. Identify Air monitoring equipment
-	Technology	P2. Identify sound level meter
		P3. Identify pH meter
		P4. Identify Equipment to monitor water pollution
		P5. Identify vibration monitoring equipment
CU2.	Identify supplies related to	P1. Identify solutions
	Environmental Technology	P2. Identify detergents
		P3. Identify fire extinguishers and fire hydrants etc.

# **Knowledge & Understanding**

#### Trainee must be able to know and understand:

- Enlist chemicals related to Environmental Technology
- Enlist tools and equipment related to Environmental Technology

#### **Tools and Equipment Required**

The tools and equipment required for this competency standard are given below:

S. No.	Items		
	1.	Chemicals	
	2.	Detergents	
3. Air monitoring equipment (CO/CO2 monitor, SOx monitor, NOx monitor, Swab kit, Particle analyzer etc.)			





4.	Noise Meter
5.	pH meter
6.	TDS meter
7.	TSS meter
8.	TSP meter
9.	DO meter
10.	Titration assembly
11.	Vibration analyzer
12.	Sound level meter
13.	Temperature gauges
14.	Glassware/Plastic ware
15.	Weighing balance

# Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

> Enlist all tools, equipment and chemicals related to environmental technology





# 0712-EPT-3: Ensure safe storage of Tools, Equipment and Supplies at Workplace

#### Overview

This competency standard will provide knowledge and skills required for safe storage of all tools, equipment and supplies related to environmental technology at workplace.

Competency Units	Performance Criteria
CU1. Ensure safe storage of	Trainee must be able to:
tools and equipment at	P1. Store tools/equipment at designated place
workplace	P2. Use labels for tools/equipment
	P3. Display appropriate warning signs
	P4. Maintain inventory of the tools/equipment
CU2. Ensure safe storage of	P1. Identify hazardous and non-hazardous chemicals
supplies at workplace	P2. Labels supplies and materials accordingly
	P3. Place chemicals at designated area as per
	instructions
	P4. Ensure safe access to all lab supply items

# **Knowledge & Understanding**

#### Trainee must be able to know and understand:

- Define safe storage procedure for tools, equipment and material/chemicals at the workplace.
- Enlist tools, equipment, materials and chemicals used for Environmental Technology at workplace.

# **Tools and Equipment Required**

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Chemicals





2.	Air monitoring equipment (CO/CO2 monitor, SOx monitor, NOx monitor, Swab kit,
	Particle analyzer etc.)
3.	Noise Meter
4.	pH meter
5.	TDS meter
6.	TSS meter
7.	TSP meter
8.	DO meter
9.	Titration assembly
10.	Vibration analyzer
11.	Sound level meter
12.	Temperature gauges
13.	Glassware/Plastic ware
14.	Weighing balance
15.	Tags/Label
16.	Containers/Storage boxes

# **Critical Evidence(s) Required**

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- > Describe safe storage of tools, equipment and materials available for Environmental Technology at work site
- > Define use of tags / labels





# Identify Tools, Equipment: Handle Hazardous Materials / Chemicals at Workplace Overview

This competency standard will provide knowledge and skills required for safe and secure handling of hazardous materials / chemicals at workplace.

Competency Units		Performance Criteria
CU1.	Identify hazardous	Trainee must be able to:
	materials / chemicals	P1. Categorize explosive materials / chemicals
		P2. Identify gases / toxic gases
		P3. Identify flammable liquids
		P4. Identify flammable substances
		P5. Identify hazardous chemicals (gas cylinders,
		corrosives, etc.)
CU2.	Ensure safe handling of	P1. Isolate hazardous from non-hazardous materials /
	hazardous materials /	chemicals
	chemicals	P2. Store all hazardous materials properly
		P3. Use PPEs where required
		P4. Separate reactive/non-reactive chemicals

# **Knowledge & Understanding**

#### Trainee must be able to know and understand:

- Define hazardous materials
- Define non-hazardous materials
- Enlist hazardous materials
- Enlist non-hazardous materials
- Describe procedure of handling hazardous and non-hazardous material

# **Tools and Equipment Required**

The tools and equipment required for this competency standard are given below:





S. No.	Items
1.	PPEs
2.	Inventory checklist
3.	Paints
4.	Detergents
5.	Gas cylinders
6.	Containers

# Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- > Enlist non-hazardous materials
- > Describe procedure of handling non-hazardous materials





# 0712-EPT-5: Respond Incidents and Emergency Situations to concerned Person

#### Overview

This competency standard will provide knowledge and skills required for procedures to respond, overcome and report an emergency situation at workplace.

Competency Units	Performance Criteria
CU1. Identify emergency	Trainee must be able to:
situation	P1. Identify fire and smoke
	P2. Identify personal injury or threat
	P3. Identify bomb threat
	P4. Identify suspicious mail or package
	P5. Identify biohazard or chemical emergency
	P6. Detect gas leak
	P7. Recognize natural disaster
CU2. Report the emergency to	P1. Detect emergency situations
concerned person at	P2. Inform the situation to concerned person as per
workplace	protocols

# **Knowledge & Understanding**

# Trainee must be able to know and understand:

- Define 'emergency'
- Describe the procedures to respond and overcome an emergency situation

# **Tools and Equipment Required**

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Emergency signs
2.	Emergency hooters
3.	First aid kit
4.	Fire extinguishers





5.	Smoke detectors
6.	Megaphone

# Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- > Use different types of Fire extinguishers
- > Demonstrate to overcome an emergency situation





# B. Generic Competency Standards

# 1022-OHS-1: Follow Basic Health and Safety Practices at Workplace

#### Overview

This competency standard will provide knowledge and skills required for basic safety practices, identification of hazards, identification of safety signs & symbols and following basic rules & regulations at the workplace.

Comp	etency Units	Performance Criteria
CU1.	Wear Personal Protective	Trainee must be able to:
	Equipment (PPEs)	P1. Identify different PPEs required at workplace
		P2. Inspect PPEs before use
		P3. Demonstrate methods to wear PPEs
		P4. Follow Standard Operating Procedures (SOPs) for
		use of safety harness
		P5. Use PPEs as per standard recommendation of
		OEM at plant
CU2.	Identify hazards at	P1. Identify hazardous chemicals at workplace
	workplace	P2. Identify hazardous waste at workplace
CU3.	Identify safety signs and	P1. Identify fire safety signs
	symbols at workplace	P2. Identify emergency exit signs
		P3. Identify road traffic regulations within the workplace
		P4. Identify prohibition signage
		P5. Identify electrical and mechanical safety signs
		P6. Identify other warning signs and symbols
CU4.	Follow basic rules and	P1. Remove tools and material from work area and place
	regulations at workplace	in storage spaces/racks
		P2. Remove debris from work place
		P3. Clean oil leakage/spillage as per requirement
		P4. Follow SOP for working at heights





		<b>P5.</b> Dispose-off the waste materials as per regulations
CU5.	Ensure adequate supply of	P1. Identify first aid kit items
	first aid in case of	P2. Make the standard list of first aid items
	emergency	P3. Follow the instructions of first aid trained person
		P4. Follow standard procedure for first aid and
		emergency
CU6.	Ensure all necessary	P1. Identify all the fire hazards
	precautions against fire	P2. Identify different type of fire safety equipment.
		P3. Follow emergency response plan in case of fire
		P4. Use fire extinguisher
		P5. Participate in emergency fire drill

# **Knowledge & Understanding**

#### Trainee must be able to know and understand:

- Define the term 'Hazard'
- Describe the types of hazards and their categories
- Define Lock out/Tag out
- Enlist different PPE's and their uses
- Explain procedure for handling different types of hazards

# **Tools and Equipment Required**

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Multimedia
2.	Computer system
3.	Emergency and warning signs
4.	Emergency hooters
5.	PPEs
6.	Survey checklist





7.	First aid kit
8.	Safety harness
9.	Fire extinguishers
10.	Oil spillage kit

# Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- > Arrange safety tools & equipment essentially available on work site
- Use safety harness
- > Use different types of fire extinguisher





# 0413-M&A-1: Adhere to organizational policies and regulations

#### Overview

This competency standard will provide knowledge and skills required for following organizational policies, rules and regulations.

Competency Units		Performance Criteria	
CU1.	Identify organizational	Trainee must be able to:	
	policies and regulations	P1. Define code of conduct	
		P2. Recognize Prohibition policies	
		P3. Identify health and safety policy	
CU2.	Follow organizational	P1. Follow organizational policies, rules and regulations	
	policies and regulations	P2. Follow regularity and punctuality	
		P3. Follow SOPs at workplace	

# **Knowledge & Understanding**

#### Trainee must be able to know and understand:

- Define the term 'Policy'
- Define the term 'Rule'
- Define the term 'Regulation'
- Describe the term 'SOP'

# **Tools and Equipment Required**

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	SOP manual
2.	Policy and procedure documents
3.	Slogans placards

# Critical Evidence(s) Required





The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

> Define policies, rules and regulations of the organization