Qualification Pack

Soil & Water Testing Lab Technician

QP Code: AGR/Q8102

Version: 3.0

NSQF Level: 4

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Qualification Pack

AGR/Q8102: Soil & Water Testing Lab Technician

Brief Job Description

The individual is responsible for receiving soil and water sample, processing soil, manure/ compost, plant and water samples for testing and maintaining records, cleaning of laboratory equipment utilizing proper cleaning protocols and procedures, preparation of chemical solutions used in the laboratory, data entry and dissemination of soil and water health cards. The person may conduct soil testing on farm field using the soil testing kit . The individual may also collect, label and dispatch soil and water samples to the Soil & Water Testing Lab for analysis.

Personal Attributes

Soil & Water Testing Lab Technician must possess good communication, facilitation, analytical and organizing skills. The individual should be laborious ,quick learner and have inclination to new learning, multitasking and sincere.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. AGR/N8101: Adhere to sanitation and safety guidelines of the lab
2. AGR/N8112: Collect soil and water sample
3. AGR/N8113: Pack, Label and Dispatch the soil and water samples to Soil & Water Testing Laboratory
4. AGR/N8105: Register and prepare samples for analysis in soil lab
5. AGR/N8106: Assist in calibration of equipment and prepare solutions for analysis in the lab
6. AGR/N8107: Assist the Lab Analyst in uploading and distribution of Soil and Water Health Card
7. AGR/N8114: Use soil testing kit for soil nutrient analysis
8. DGT/VSQ/N0102: Employability Skills (60 Hours)

Qualification Pack (QP) Parameters

Sector	Agriculture
Sub-Sector	Agriculture Industries

Qualification Pack

Occupation	Research and Development
Country	India
NSQF Level	4
Credits	13
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3111.0200
Minimum Educational Qualification & Experience	12th grade Pass OR Completed 2nd year of the 3-year diploma after 10 (and pursuing regular diploma) OR 10th grade pass (plus 2-year NTC) OR 10th grade pass (plus 1-year NTC plus 1 year NAC) OR 8th grade pass with 2 year NTC plus 1 year NAC plus 1 year CITS OR 10th grade pass and pursuing continuous schooling OR 10th grade pass with 2 Years of experience relevant experience OR Previous relevant Qualification of NSQF Level (Level 3.0 with minimum education as 8th Grade pass) with 3 Years of experience relevant experience OR Previous relevant Qualification of NSQF Level (Level 3.5 with 1.5- year relevant experience)
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	27/01/2025
NSQC Approval Date	27/01/2022
Version	3.0
Reference code on NQR	QG-04-AG-00296-2023-V1.1-ASCI

NQR Version	1.1

AGR/N8101: Adhere to sanitation and safety guidelines of the lab

Description

This OS unit is about maintaining personal hygiene and undertaking sanitation and safety measures in the lab.

Scope

The scope covers the following :

- Maintain personal hygiene
- Follow the lab sanitation guidelines
- Ensure safety at the lab

Elements and Performance Criteria

Maintain personal hygiene

To be competent, the user/individual on the job must be able to:

PC1. follow recommended personal hygiene and sanitation practices, for example, washing/sanitizing hands, covering face with a bent elbow while coughing/sneezing, using PPE, etc.

PC2. follow recommended workplace hygiene and sanitation practices, for example, sanitizing workstation and equipment regularly, using disposable wipes and utensils, etc.

Follow sanitation and safety guidelines of the lab

To be competent, the user/individual on the job must be able to:

PC3. identify the requirements and working of different rooms/chambers and equipment

PC4. oversee lab cleaning activities and undertake fumigation as and when required

PC5. remove all consumables and flammable items from the lab

PC6. place reagents/chemicals at their designated place alphabetically in accordance with their properties

PC7. clean/wash all the glasswares manually or through automatic washing machine in potable water

PC8. dry and sterilize glass-wares, etc. in hot air oven

PC9. clean and disinfect all tools/equipment/materials/supplies before and after use

PC10. place all the tools and equipment at the designated places after use

PC11. follow work instructions for maintaining the required lab environment

PC12. connect electrical tools and equipment safely and turn off when not in use

PC13. dispose any expired chemicals as per the Standard Operating Procedure (SOP)

PC14. optimise usage of electricity/ water/ materials in various tasks/ activities/ processes

PC15. segregate waste into different categories

PC16. dispose non-recyclable waste appropriately

PC17. deposit recyclable and reusable material at the identified location

Ensure safety at the lab

To be competent, the user/individual on the job must be able to:

PC18. wear appropriate Personal Protective Equipment (PPE) while performing work in accordance with the workplace policy

PC19. assess risks prior to performing manual handling jobs, and work according to currently recommended safe practices

PC20. follow the safety precautions provided by the manufacturer when operating instruments

PC21. follow the instructions mentioned on the labels of chemicals/pesticides/fumigants etc. to avoid hazards

PC22. check for spills/leakages in various tasks/activities/processes

PC23. dispose waste safely and correctly in the designated area

PC24. follow procedures for dealing with accidents, fires and emergencies, as per the workplace requirements

PC25. use emergency equipment in accordance with manufacturer's specifications and workplace requirements

PC26. follow government / workplace advisories in case of outbreak of any disease/disaster

PC27. carry out all procedures and follow work instructions for controlling operational risks

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant legislation, standards, policies and procedures at work

KU2. relevant health and safety requirements applicable to the work environment

KU3. own job role, responsibilities and sources of information pertaining to the lab operations

KU4. impact of not following the health, hygiene, safety and quality standards on consumers and the business

KU5. layout of the lab

KU6. good lab practices

KU7. importance of cleanliness and aseptic condition in the lab

KU8. methods of lab cleaning and mopping

KU9. disinfectants and fumigants used in the lab

KU10. different chemicals, lab-wares, equipment and their use

KU11. maintenance of various equipment of the lab

KU12. benefits of resource optimisation

KU13. common practices of conserving electricity/water/material/supplies

KU14. waste management and methods of waste disposal

KU15. the risks to health and safety and the measures to be taken to control those risks in your area of work

KU16. workplace procedures and requirements for the treatment of workplace injuries/illnesses

KU17. basic emergency first aid procedure

KU18. why accidents, incidents and problems should be reported and the appropriate action to be taken

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. assist in recording the data as per the requirement
GS2. report problems to the appropriate personnel in a timely manner
GS3. read instruction manual for lab equipment/supplies
GS4. communicate clearly and effectively with farmers, co-workers and other stakeholders
GS5. comprehend information shared by senior people and experts

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Maintain personal hygiene	**5**	**5**	**-**	**5**
PC1. follow recommended personal hygiene and sanitation practices, for example, washing/sanitizing hands, covering face with a bent elbow while coughing/sneezing, using PPE, etc.	-	-	-	-
PC2. follow recommended workplace hygiene and sanitation practices, for example, sanitizing workstation and equipment regularly, using disposable wipes and utensils, etc.	-	-	-	-
Follow sanitation and safety guidelines of the lab	**15**	**25**	**-**	**10**
PC3. identify the requirements and working of different rooms/chambers and equipment	-	-	-	-
PC4. oversee lab cleaning activities and undertake fumigation as and when required	-	-	-	-
PC5. remove all consumables and flammable items from the lab	-	-	-	-
PC6. place reagents/chemicals at their designated place alphabetically in accordance with their properties	-	-	-	-
PC7. clean/wash all the glasswares manually or through automatic washing machine in potable water	-	-	-	-
PC8. dry and sterilize glass-wares, etc. in hot air oven	-	-	-	-
PC9. clean and disinfect all tools/equipment/materials/supplies before and after use	-	-	-	-
PC10. place all the tools and equipment at the designated places after use	-	-	-	-
PC11. follow work instructions for maintaining the required lab environment	-	-	-	-
PC12. connect electrical tools and equipment safely and turn off when not in use	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. dispose any expired chemicals as per the Standard Operating Procedure (SOP)	-	-	-	-
PC14. optimise usage of electricity/ water/ materials in various tasks/ activities/ processes	-	-	-	-
PC15. segregate waste into different categories	-	-	-	-
PC16. dispose non-recyclable waste appropriately	-	-	-	-
PC17. deposit recyclable and reusable material at the identified location	-	-	-	-
Ensure safety at the lab	**10**	**10**	**-**	**15**
PC18. wear appropriate Personal Protective Equipment (PPE) while performing work in accordance with the workplace policy	-	-	-	-
PC19. assess risks prior to performing manual handling jobs, and work according to currently recommended safe practices	-	-	-	-
PC20. follow the safety precautions provided by the manufacturer when operating instruments	-	-	-	-
PC21. follow the instructions mentioned on the labels of chemicals/pesticides/fumigants etc. to avoid hazards	-	-	-	-
PC22. check for spills/leakages in various tasks/activities/processes	-	-	-	-
PC23. dispose waste safely and correctly in the designated area	-	-	-	-
PC24. follow procedures for dealing with accidents, fires and emergencies, as per the workplace requirements	-	-	-	-
PC25. use emergency equipment in accordance with manufacturer's specifications and workplace requirements	-	-	-	-
PC26. follow government / workplace advisories in case of outbreak of any disease/disaster	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. carry out all procedures and follow work instructions for controlling operational risks	-	-	-	-
NOS Total	**30**	**40**	**-**	**30**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N8101
NOS Name	Adhere to sanitation and safety guidelines of the lab
Sector	Agriculture
Sub-Sector	Agriculture Industries
Occupation	Research and Development
NSQF Level	4
Credits	1
Version	2.0
Last Reviewed Date	27/01/2022
Next Review Date	27/01/2025
NSQC Clearance Date	27/01/2022

AGR/N8112: Collect soil and water sample

Description

This OS unit deals with the method of collection of soil and water samples using cadastral map and GPS/GIS instruments for analysis while following appropriate safety and sanitation measures. It also covers waste mangement practices at work.

Scope

The scope covers the following :

- Identify the soil sampling site
- Collect soil samples from the site
- Collect water samples from the irrigation source
- Perform waste management
- Adhere to sanitation and safety guidelines while sample collection

Elements and Performance Criteria

Identify the soil sampling site

To be competent, the user/individual on the job must be able to:

PC1. use cadastral maps as base to locate and identify the site for sampling and preparing fertility map

PC2. mark the geographical coordinates with the help of GPS instrument

PC3. carry out grid sampling in 2.5 ha in irrigated and 10 ha in rainfed areas as required for preparing soil health cards

Collect soil sample from the site

To be competent, the user/individual on the job must be able to:

PC4. explain the importance of soil testing to the farmers

PC5. communicate effectively with farmers to collect the soil sample

PC6. use khurpi, spade, tube auger, screw auger and other equipment necessary for taking the sample from appropriate place of right quality in right quantity

PC7. plan for one representative sample from one uniform area w.r.t. uniformity in slope, drainage, colour and past management practices

PC8. ensure sample is not collected directly after any cultural activity in the field

PC9. ensure sample is not collected from unusual area like unevenly fertilized, marshy, old path, old channel, area near the tree, site of previous compost piles and manure heaps , dead furrows, areas near main bunds or old bund, & irrigation channels other unrepresentative sites

PC10. ensure sample is not collected at the periphery or in a straight line

PC11. undertake sampling at several locations in a zig-zag pattern

PC12. remove the surface litter from the sampling spot

PC13. collect a uniform slice digging a V-shaped cut upto sampling depth depending on the type of crop

PC14. collect 4-5 slices in a plastic tray to get a definitive soil sample from the field

PC15. mix the sub-samples thouroughly and remove foreign materials like roots, stones, pebbles & gravel

PC16. dry the soil samples in open air and avoid contamination

PC17. reduce the bulk to about half to one kilogram by quartering or compartmentalization

PC18. avoid any type of contamination at all stages

Collect water samples from the irrigation source

To be competent, the user/individual on the job must be able to:

PC19. select the appropriate time for water sample collection

PC20. collect sample from irrigation sources viz., tap, river, surface water, well, borehole etc. in a clean and contaminant free plastic bottle, following the standard procedure

PC21. avoid any accidental contamination with soil or any foreign material

Perform waste management

To be competent, the user/individual on the job must be able to:

PC22. segregate waste into different categories

PC23. dispose waste safely and correctly in the designated area

PC24. deposit recyclable and reusable materials at the identified location

Adhere to sanitation and safety guidelines while sample collection

To be competent, the user/individual on the job must be able to:

PC25. follow recommended personal and workplace hygiene and sanitation practices as per SOP of workplace

PC26. undertake basic safety checks before operation of all tool and equipment and ensure all the hazards are reported to the appropriate supervisor in time

PC27. wear appropriate personal protective equipment (PPE) while performing work in accordance with the workplace policy

PC28. sanitize equipment, tools and machinery before and after use and store them at designated place

PC29. work in a manner that minimises environmental damage, ensuring all procedures and instructions for controlling risks are followed

PC30. report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action to reduce further danger

PC31. administer appropriate emergency procedures as per SOP of workplace

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant health and safety requirements applicable to the work environment

KU2. own job role & responsibilities and sources of information pertaining to work

KU3. who to approach for support in order to obtain work related information and clarifications

KU4. impact of not following the health, hygiene, safety and quality standards on consumers and the business

KU5. relevant legislation, standards, policies, and procedures at work

KU6. use of cadastral map
KU7. use of GPS and GIS for mapping and interpretation of data for sampling
KU8. basic concepts of soil and water health management
KU9. methods of soil and water sampling and collection from the field and water sources

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read operational manual of collecting soil and water samples
GS2. communicate effectively with farmers
GS3. practice appropriate behavior and verbal and non-verbal communication while interacting with Persons with Disabilities (PwD) and across all gender
GS4. make decisions pertaining to the concerned area of work
GS5. plan and schedule field operations
GS6. think through the problem, evaluate the possible solutions and choose the best possible solution(s)
GS7. analyze the information gathered from one's observations and experiences

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Identify the soil sampling site	**5**	**15**	**-**	**7**
PC1. use cadastral maps as base to locate and identify the site for sampling and preparing fertility map	-	-	-	-
PC2. mark the geographical coordinates with the help of GPS instrument	-	-	-	-
PC3. carry out grid sampling in 2.5 ha in irrigated and 10 ha in rainfed areas as required for preparing soil health cards	-	-	-	-
Collect soil sample from the site	**7**	**15**	**-**	**5**
PC4. explain the importance of soil testing to the farmers	-	-	-	-
PC5. communicate effectively with farmers to collect the soil sample	-	-	-	-
PC6. use khurpi, spade, tube auger, screw auger and other equipment necessary for taking the sample from appropriate place of right quality in right quantity	-	-	-	-
PC7. plan for one representative sample from one uniform area w.r.t. uniformity in slope, drainage, colour and past management practices	-	-	-	-
PC8. ensure sample is not collected directly after any cultural activity in the field	-	-	-	-
PC9. ensure sample is not collected from unusual area like unevenly fertilized, marshy, old path, old channel, area near the tree, site of previous compost piles and manure heaps , dead furrows, areas near main bunds or old bund, & irrigation channels other unrepresentative sites	-	-	-	-
PC10. ensure sample is not collected at the periphery or in a straight line	-	-	-	-
PC11. undertake sampling at several locations in a zig-zag pattern	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. remove the surface litter from the sampling spot	-	-	-	-
PC13. collect a uniform slice digging a V-shaped cut upto sampling depth depending on the type of crop	-	-	-	-
PC14. collect 4-5 slices in a plastic tray to get a definitive soil sample from the field	-	-	-	-
PC15. mix the sub-samples thouroughly and remove foreign materials like roots, stones, pebbles & gravel	-	-	-	-
PC16. dry the soil samples in open air and avoid contamination	-	-	-	-
PC17. reduce the bulk to about half to one kilogram by quartering or compartmentalization	-	-	-	-
PC18. avoid any type of contamination at all stages	-	-	-	-
Collect water samples from the irrigation source	**5**	**10**	**-**	**3**
PC19. select the appropriate time for water sample collection	-	-	-	-
PC20. collect sample from irrigation sources viz., tap, river, surface water, well, borehole etc. in a clean and contaminant free plastic bottle, following the standard procedure	-	-	-	-
PC21. avoid any accidental contamination with soil or any foreign material	-	-	-	-
Perform waste management	**3**	**5**	**-**	**2**
PC22. segregate waste into different categories	-	-	-	-
PC23. dispose waste safely and correctly in the designated area	-	-	-	-
PC24. deposit recyclable and reusable materials at the identified location	-	-	-	-
Adhere to sanitation and safety guidelines while sample collection	**5**	**10**	**-**	**3**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC25. follow recommended personal and workplace hygiene and sanitation practices as per SOP of workplace	-	-	-	-
PC26. undertake basic safety checks before operation of all tool and equipment and ensure all the hazards are reported to the appropriate supervisor in time	-	-	-	-
PC27. wear appropriate personal protective equipment (PPE) while performing work in accordance with the workplace policy	-	-	-	-
PC28. sanitize equipment, tools and machinery before and after use and store them at designated place	-	-	-	-
PC29. work in a manner that minimises environmental damage, ensuring all procedures and instructions for controlling risks are followed	-	-	-	-
PC30. report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action to reduce further danger	-	-	-	-
PC31. administer appropriate emergency procedures as per SOP of workplace	-	-	-	-
NOS Total	**25**	**55**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N8112
NOS Name	Collect soil and water sample
Sector	Agriculture
Sub-Sector	Agriculture Industries
Occupation	Research and Development
NSQF Level	4
Credits	1
Version	3.0
Last Reviewed Date	NA
Next Review Date	27/01/2025
NSQC Clearance Date	27/01/2022

AGR/N8113: Pack, Label and Dispatch the soil and water samples to Soil & Water Testing Laboratory

Description

This OS unit is about packing, labeling & dispatching the collected soil and water samples to the Soil & Water Testing Laboratory.

Scope

The scope covers the following :

- Pack, label and dispatch the soil and water samples to the lab for testing

Elements and Performance Criteria

Pack, label and dispatch the soil and water samples to the lab for testing

To be competent, the user/individual on the job must be able to:

PC1. collect the samples in clean polythene bags (soil) or plastic bottles (water)

PC2. prevent the samples from getting contaminated with chemicals, fertilizers or manures

PC3. seal the sample bags & bottles immediately after collection

PC4. keep the sample bags & bottles in a cloth bag with proper labels

PC5. label the sample bags/bottles with waterproof marker and seal them tightly to avoid any contamination/leakage during transport

PC6. ensure the label correctly corresponds to the basic information filled in the data collection register such as name of the sampler, farmer, present crop, date, et

PC7. place the label between cloth bags and samples to avoid any spoiling

PC8. dispatch the samples to the nearest Soil & Water Testing Lab in cardboard boxes or sacks within 24 hours of collection

PC9. collect the Soil and Water Health Card from lab and distribute it to the farmers post checking the details

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant health and safety requirements applicable to the work environment

KU2. own job role and responsibilities and sources of information pertaining to work

KU3. impact of not following the health, hygiene, safety and quality standards on consumers and the business

KU4. relevant legislation, standards, policies and procedures at work

KU5. fundamentals of soil testing

KU6. physical screening of contaminants

KU7. proper method of packing and labeling of soil and water samples

KU8. relevant information to be collected at the time of sample collection

KU9. importance of Soil & Water Health Card

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. note the data required for keeping records

GS2. read the SOP carefully and make use of SOP while collection of samples

GS3. communicate effectively with farmers and lab personnel

GS4. plan and schedule various operations

GS5. think through the problem, evaluate the possible solutions and choose the best possible solution(s)

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Pack, label and dispatch the soil and water samples to the lab for testing	**30**	**40**	**-**	**30**
PC1. collect the samples in clean polythene bags (soil) or plastic bottles (water)	-	-	-	-
PC2. prevent the samples from getting contaminated with chemicals, fertilizers or manures	-	-	-	-
PC3. seal the sample bags & bottles immediately after collection	-	-	-	-
PC4. keep the sample bags & bottles in a cloth bag with proper labels	-	-	-	-
PC5. label the sample bags/bottles with waterproof marker and seal them tightly to avoid any contamination/leakage during transport	-	-	-	-
PC6. ensure the label correctly corresponds to the basic information filled in the data collection register such as name of the sampler, farmer, present crop, date, et	-	-	-	-
PC7. place the label between cloth bags and samples to avoid any spoiling	-	-	-	-
PC8. dispatch the samples to the nearest Soil & Water Testing Lab in cardboard boxes or sacks within 24 hours of collection	-	-	-	-
PC9. collect the Soil and Water Health Card from lab and distribute it to the farmers post checking the details	-	-	-	-
NOS Total	**30**	**40**	**-**	**30**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N8113
NOS Name	Pack, Label and Dispatch the soil and water samples to Soil & Water Testing Laboratory
Sector	Agriculture
Sub-Sector	Agriculture Industries
Occupation	Research and Development
NSQF Level	4
Credits	1
Version	2.0
Last Reviewed Date	27/01/2022
Next Review Date	27/01/2025
NSQC Clearance Date	27/01/2022

AGR/N8105: Register and prepare samples for analysis in soil lab

Description

This OS unit is about registration and preparation of soil, manure/compost, plant and water samples for analysis in the lab

Scope

The scope covers the following :

- Register samples of soil, manure/compost, plant and water
- Prepare soil samples for analysis
- Handle and store water samples for analysis
- Prepare manure/compost and plant samples for analysis

Elements and Performance Criteria

Register samples of soil, manure/compost, plant and water

To be competent, the user/individual on the job must be able to:

PC1. receive the samples in the Sample Receiving Cell by checking the availability of required information

PC2. examine the condition and quantity of the samples

PC3. issue appropriate acknowledgement slip to the person delivering the sample manually or electronically

PC4. use electronic payment methods for accepting and making payments such as BHIM UPI, payment apps, e-wallet etc

PC5. make the entry of samples in the sample register/computer

PC6. assign sample number/lab number to each sample

PC7. transfer the samples for analysis detailing the tests required, expected date of reporting, etc.

Prepare soil samples for analysis

To be competent, the user/individual on the job must be able to:

PC8. mix the soil sample homogeneously and leave it to attain equilibrium in the trays

PC9. dry the soil sample in open air to maintain natural environment

PC10. crush and grind the clods gently with the help of wooden pestle & mortar

PC11. remove all the gravel, limestone, stones, etc., from the sample and record their data separately

PC12. sieve the soil using recommended size mesh stainless steel sieves

PC13. place sufficient quantity of sieved soil sample in plastic bag appropriately labelled with permanent ink marker

PC14. discard the plant residues, gravel and other materials retained on the sieve

Handle and store water samples for analysis

To be competent, the user/individual on the job must be able to:

PC15. store the water samples in glass bottles, previously sterilized or free from any contamination

PC16. refrigerate the water samples as soon as possible (do not allow to freeze)

PC17. label the water sample bottles with waterproof marker and seal them tightly to avoid any contamination/leakage

PC18. ensure shorter time period between collection and analysis for more reliable results

Prepare manure/compost and plant samples for analysis

To be competent, the user/individual on the job must be able to:

PC19. collect and seal the manure/plant samples in polyethylene bags

PC20. store the manure/plant samples in freezer

PC21. clean and take fresh weight of the samples

PC22. dry the samples in hot air oven at recommended temperature & time and then weigh the sample

PC23. calculate percent(%) of dry matter in sample

PC24. grind the sample to fine size (20 mm. mesh sieve) and make it ready for NPK analysis

PC25. grind the sample more finely in porcelain mortar to avoid any metallic contamination for micro-nutrient analysis.

PC26. seal and label the samples in polyethylene bags and store in cool & dry place for analysis

PC27. keep the samples decontaminated from any outside material

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant legislation, standards, policies and procedures at work

KU2. relevant health and safety requirements applicable to the work environment

KU3. own job role, responsibilities and sources of information pertaining to the lab operations

KU4. who to approach for support in order to obtain work related information and clarifications

KU5. impact of not following the health, hygiene, safety and quality standards on consumers and the business

KU6. fundamentals of soil, manure/compost, plant and water testing

KU7. good laboratory practices

KU8. physical screening of contaminants

KU9. method of preparation of soil, manure/compost, plant and water samples for analysis

KU10. importance of the sample quality for quality analysis

KU11. personal hygiene and lab sanitation

KU12. basic concepts of soil health management

KU13. methods of handling and processing the samples for lab analysis

KU14. tools and equipment used for processing the samples for analysis

KU15. details required for registration of the samples

KU16. various methods of taking payment from the customers/farmers

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. maintain records of important and necessary data
GS2. report problems to the appropriate personnel in a timely manner
GS3. read operational manual for good lab practices
GS4. communicate effectively with other co-workers, seniors and customers
GS5. make decisions pertaining to the concerned area of work
GS6. plan and schedule various lab operations

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Register samples of soil, manure/compost, plant and water	**5**	**10**	**-**	**5**
PC1. receive the samples in the Sample Receiving Cell by checking the availability of required information	-	-	-	-
PC2. examine the condition and quantity of the samples	-	-	-	-
PC3. issue appropriate acknowledgement slip to the person delivering the sample manually or electronically	-	-	-	-
PC4. use electronic payment methods for accepting and making payments such as BHIM UPI, payment apps, e-wallet etc	-	-	-	-
PC5. make the entry of samples in the sample register/computer	-	-	-	-
PC6. assign sample number/lab number to each sample	-	-	-	-
PC7. transfer the samples for analysis detailing the tests required, expected date of reporting, etc.	-	-	-	-
Prepare soil samples for analysis	**10**	**15**	**-**	**5**
PC8. mix the soil sample homogeneously and leave it to attain equilibrium in the trays	-	-	-	-
PC9. dry the soil sample in open air to maintain natural environment	-	-	-	-
PC10. crush and grind the clods gently with the help of wooden pestle & mortar	-	-	-	-
PC11. remove all the gravel, limestone, stones, etc., from the sample and record their data separately	-	-	-	-
PC12. sieve the soil using recommended size mesh stainless steel sieves	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. place sufficient quantity of sieved soil sample in plastic bag appropriately labelled with permanent ink marker	-	-	-	-
PC14. discard the plant residues, gravel and other materials retained on the sieve	-	-	-	-
Handle and store water samples for analysis	**5**	**10**	**-**	**5**
PC15. store the water samples in glass bottles, previously sterilized or free from any contamination	-	-	-	-
PC16. refrigerate the water samples as soon as possible (do not allow to freeze)	-	-	-	-
PC17. label the water sample bottles with waterproof marker and seal them tightly to avoid any contamination/leakage	-	-	-	-
PC18. ensure shorter time period between collection and analysis for more reliable results	-	-	-	-
Prepare manure/compost and plant samples for analysis	**10**	**15**	**-**	**5**
PC19. collect and seal the manure/plant samples in polyethylene bags	-	-	-	-
PC20. store the manure/plant samples in freezer	-	-	-	-
PC21. clean and take fresh weight of the samples	-	-	-	-
PC22. dry the samples in hot air oven at recommended temperature & time and then weigh the sample	-	-	-	-
PC23. calculate percent(%) of dry matter in sample	-	-	-	-
PC24. grind the sample to fine size (20 mm. mesh sieve) and make it ready for NPK analysis	-	-	-	-
PC25. grind the sample more finely in porcelain mortar to avoid any metallic contamination for micro-nutrient analysis.	-	-	-	-
PC26. seal and label the samples in polyethylene bags and store in cool & dry place for analysis	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. keep the samples decontaminated from any outside material	-	-	-	-
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N8105
NOS Name	Register and prepare samples for analysis in soil lab
Sector	Agriculture
Sub-Sector	Agriculture Industries
Occupation	Research and Development
NSQF Level	4
Credits	1
Version	2.0
Last Reviewed Date	27/01/2022
Next Review Date	27/01/2025
NSQC Clearance Date	27/01/2022

AGR/N8106: Assist in calibration of equipment and prepare solutions for analysis in the lab

Description

This OS unit is about assistance in calibration of measuring and monitoring equipment, preparing solutions and document maintenance.

Scope

The scope covers the following :

- Maintain records of lab-wares, equipment and chemicals/reagents
- Calibrate measuring and monitoring equipment
- Prepare solutions for analysis

Elements and Performance Criteria

Maintain records of lab-wares, equipment and chemicals/reagents

To be competent, the user/individual on the job must be able to:

PC1. identify different types of instruments, equipment, chemicals/reagents in the lab

PC2. maintain the list of all lab-wares, equipment and chemicals/reagents in prescribed format as advised by lab Analyst

PC3. verify and update the list of documents periodically

Calibrate measuring and monitoring equipment

To be competent, the user/individual on the job must be able to:

PC4. optimize measuring and monitoring equipment to provide the necessary accuracy of the measurement

PC5. calibrate equipment in accordance with written instructions

PC6. label the lab equipment indicating as per their calibration status i.e calibrated or not calibrated

PC7. get the equipment that requires external calibration calibrated by an authorized agency

PC8. register readings after the experiments as instructed by the Lab Analyst

Prepare solutions for analysis

To be competent, the user/individual on the job must be able to:

PC9. prepare 1000 ppm stock solutions of different elements as instructed and use/store carefully

PC10. register pH and EC readings according to temperature

PC11. prepare standard solutions as instructed

PC12. store the standard solutions at the required temperature for respective reagent as per the instruction

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant legislation, standards, policies and procedures at work
KU2. relevant health and safety requirements applicable to the work environment
KU3. own job role, responsibilities and sources of information pertaining to the lab operations
KU4. impact of not following the health, hygiene, safety and quality standards on consumers and the business
KU5. good laboratory practices
KU6. basic terminologies: Standard Solution, Normal Solution and Normality, Molar Solution and Molarity, Molal Solution and Molality, Titration, percentage composition by weight, percentage composition by volume, parts per million (ppm), milli equivalent per litre
KU7. method of preparation of standard solutions
KU8. basic principles, operation and maintenance of various lab equipment/instrument
KU9. different types of chemicals/reagents, their uses and safe handling
KU10. different types of equipment & lab-wares and their working
KU11. analytical methods for conducting different tests
KU12. safe lab operation procedures
KU13. different registers to be maintained in the lab
KU15. different methods of manual or electronic

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. note the data required for the record keeping purpose or as communicated by the supervisor
GS2. read equipment manuals to understand the equipment operation and process requirements
GS3. follow procedures for preparation of standard solutions
GS4. discuss task lists, schedules and activities with the supervisor
GS5. attentively listen and comprehend the information given by the supervisor
GS6. plan and organize lab operations to utilize time and equipment effectively
GS7. analyze the information gathered from one's observations and experiences
GS8. handle issues of lab in case the supervisor is not available

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Maintain records of lab-wares, equipment and chemicals/reagents	**10**	**5**	**-**	**5**
PC1. identify different types of instruments, equipment, chemicals/reagents in the lab	-	-	-	-
PC2. maintain the list of all lab-wares, equipment and chemicals/reagents in prescribed format as advised by lab Analyst	-	-	-	-
PC3. verify and update the list of documents periodically	-	-	-	-
Calibrate measuring and monitoring equipment	**5**	**20**	**-**	**10**
PC4. optimize measuring and monitoring equipment to provide the necessary accuracy of the measurement	-	-	-	-
PC5. calibrate equipment in accordance with written instructions	-	-	-	-
PC6. label the lab equipment indicating as per their calibration status i.e calibrated or not calibrated	-	-	-	-
PC7. get the equipment that requires external calibration calibrated by an authorized agency	-	-	-	-
PC8. register readings after the experiments as instructed by the Lab Analyst	-	-	-	-
Prepare solutions for analysis	**10**	**25**	**-**	**10**
PC9. prepare 1000 ppm stock solutions of different elements as instructed and use/store carefully	-	-	-	-
PC10. register pH and EC readings according to temperature	-	-	-	-
PC11. prepare standard solutions as instructed	-	-	-	-
PC12. store the standard solutions at the required temperature for respective reagent as per the instruction	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	25	50	-	25

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N8106
NOS Name	Assist in calibration of equipment and prepare solutions for analysis in the lab
Sector	Agriculture
Sub-Sector	Agriculture Industries
Occupation	Research and Development
NSQF Level	4
Credits	2
Version	2.0
Last Reviewed Date	27/01/2022
Next Review Date	27/01/2025
NSQC Clearance Date	27/01/2022

AGR/N8107: Assist the Lab Analyst in uploading and distribution of Soil and Water Health Card

Description

This OS unit is about about assisting the Lab Analyst in taking observations, uploading and distributing Soil & Water Health card

Scope

The scope covers the following :

- Record the observations and recommendations given by the Lab Analyst
- Asist in distribution of Soil & Water Health Cards

Elements and Performance Criteria

Record the observations and recommendations given by the Lab Analyst

To be competent, the user/individual on the job must be able to:

PC1. assist the lab analyst in taking observations

PC2. register pH, EC readings

PC3. register readings after the experiments as instructed by the Lab Analyst

PC4. test the computer system for correct functioning to record the relevant data

PC5. carry out data entry of the results and recommendations as directed by the analyst on the computer

PC6. prepare soil & water analysis test report as per the relevant parameters under the supervision of analyst

PC7. upload the data on the portal

Assist in distribution of Soil & Water Health Cards

To be competent, the user/individual on the job must be able to:

PC8. use prescribed format of the Soil & Water Health card to print electronically

PC9. check the record of the individual manually or electronically and distribute the Soil & Water Health card to concerned person

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant legislation, standards, policies and procedures at work

KU2. relevant health and safety requirements applicable to the work environment

KU3. own job role, responsibilities and sources of information pertaining to the lab operations

KU4. impact of not following the health, hygiene, safety and quality standards on consumers and the business

KU5. basic understanding of computer and its terminologies

KU6. operations of various lab equipment
KU7. how to take experimental observations
KU8. how to make error free data entry
KU9. information provided in the Soil & Water Health Card
KU10. importance of Soil & Water Health Card

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. note the data required for the record keeping purpose
GS2. report problems to the appropriate personnel in a timely manner
GS3. read operation manual of lab equipment for good lab practices
GS4. communicate effectively with other co-workers, seniors & customers
GS5. make decisions pertaining to the concerned area of work
GS6. plan and organize lab operations to utilize time and equipment effectively
GS7. identify problems that may arise in carrying out tasks and take preventative action

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Record the observations and recommendations given by the Lab Analyst	**20**	**40**	**-**	**15**
PC1. assist the lab analyst in taking observations	-	-	-	-
PC2. register pH, EC readings	-	-	-	-
PC3. register readings after the experiments as instructed by the Lab Analyst	-	-	-	-
PC4. test the computer system for correct functioning to record the relevant data	-	-	-	-
PC5. carry out data entry of the results and recommendations as directed by the analyst on the computer	-	-	-	-
PC6. prepare soil & water analysis test report as per the relevant parameters under the supervision of analyst	-	-	-	-
PC7. upload the data on the portal	-	-	-	-
Assist in distribution of Soil & Water Health Cards	**5**	**15**	**-**	**5**
PC8. use prescribed format of the Soil & Water Health card to print electronically	-	-	-	-
PC9. check the record of the individual manually or electronically and distribute the Soil & Water Health card to concerned person	-	-	-	-
NOS Total	**25**	**55**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N8107
NOS Name	Assist the Lab Analyst in uploading and distribution of Soil and Water Health Card
Sector	Agriculture
Sub-Sector	Agriculture Industries
Occupation	Research and Development
NSQF Level	4
Credits	1
Version	2.0
Last Reviewed Date	27/01/2022
Next Review Date	27/01/2025
NSQC Clearance Date	27/01/2022

AGR/N8114: Use soil testing kit for soil nutrient analysis

Description

This OS unit is about conducting analysis of the soil nutrients using soil testing kit, on the field.

Scope

The scope covers the following :

- Use soil testing kit for soil nutrient analysis on the field

Elements and Performance Criteria

Use soil testing kit for soil nutrient analysis on the field

To be competent, the user/individual on the job must be able to:

PC1. ensure the required reagents in the soil testing kit are sufficient and refill as and when required

PC2. prepare the soil sample solution with distilled water as specified in the instruction guidelines of the kit

PC3. transfer solution to the appropriate test chambers in the kit for chemical analysis as per the instructions

PC4. compare the obtained results with the soil analysis chart in the soil testing kit

PC5. transfer the analyzed data to the mobile phone as per the instruction

PC6. provoide the results of the analysis to the farmers as per the analysis chart and nutrient level indicator scale in the kit

PC7. communicate the results of the analysis to the farmers

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant legislation, standards, policies and procedures at work

KU2. relevant health and safety requirements applicable to the work environment

KU3. own job role & responsibilities and sources of information pertaining to work

KU4. impact of not following the health, hygiene, safety and quality standards on consumers and the business

KU5. importance of soil testing kit

KU6. how to use the soil testing kit

KU7. reagents used and their change of end point color for various analysis done through the soil testing kit

KU8. relation of end point colour to the soil nutrient content

KU9. how to transfer the analyzed data to mobile phones

KU10. how to make error free data entry

KU11. how to read the soil analysis chart

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. note the data required for record keeping purpose
GS2. read the instruction guidelines of the soil testing kit
GS3. communicate effectively with farmers and other stakeholders
GS4. make decisions pertaining to the concerned area of work
GS5. plan and schedule field visits
GS6. think through the problem, evaluate the possible solution(s) and choose an optimum /best possible solution(s)
GS7. analyze the information gathered from one's observations and experiences

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Use soil testing kit for soil nutrient analysis on the field	**30**	**50**	**-**	**20**
PC1. ensure the required reagents in the soil testing kit are sufficient and refill as and when required	-	-	-	-
PC2. prepare the soil sample solution with distilled water as specified in the instruction guidelines of the kit	-	-	-	-
PC3. transfer solution to the appropriate test chambers in the kit for chemical analysis as per the instructions	-	-	-	-
PC4. compare the obtained results with the soil analysis chart in the soil testing kit	-	-	-	-
PC5. transfer the analyzed data to the mobile phone as per the instruction	-	-	-	-
PC6. provoide the results of the analysis to the farmers as per the analysis chart and nutrient level indicator scale in the kit	-	-	-	-
PC7. communicate the results of the analysis to the farmers	-	-	-	-
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N8114
NOS Name	Use soil testing kit for soil nutrient analysis
Sector	Agriculture
Sub-Sector	Agriculture Industries
Occupation	Research & Development
NSQF Level	4
Credits	1
Version	2.0
Last Reviewed Date	27/01/2022
Next Review Date	27/01/2025
NSQC Clearance Date	27/01/2022

DGT/VSQ/N0102: Employability Skills (60 Hours)

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

Elements and Performance Criteria

Introduction to Employability Skills

To be competent, the user/individual on the job must be able to:

PC1. identify employability skills required for jobs in various industries

PC2. identify and explore learning and employability portals

Constitutional values – Citizenship

To be competent, the user/individual on the job must be able to:

PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.

PC4. follow environmentally sustainable practices

Becoming a Professional in the 21st Century

To be competent, the user/individual on the job must be able to:

PC5. recognize the significance of 21st Century Skills for employment

PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

Basic English Skills

To be competent, the user/individual on the job must be able to:

PC7. use basic English for everyday conversation in different contexts, in person and over the telephone

PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English

PC9. write short messages, notes, letters, e-mails etc. in English

Career Development & Goal Setting

To be competent, the user/individual on the job must be able to:

PC10. understand the difference between job and career

PC11. prepare a career development plan with short- and long-term goals, based on aptitude

Communication Skills

To be competent, the user/individual on the job must be able to:

PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings

PC13. work collaboratively with others in a team

Diversity & Inclusion

To be competent, the user/individual on the job must be able to:

PC14. communicate and behave appropriately with all genders and PwD

PC15. escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

To be competent, the user/individual on the job must be able to:

PC16. select financial institutions, products and services as per requirement

PC17. carry out offline and online financial transactions, safely and securely

PC18. identify common components of salary and compute income, expenses, taxes, investments etc

PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation

Essential Digital Skills

To be competent, the user/individual on the job must be able to:

PC20. operate digital devices and carry out basic internet operations securely and safely

PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively

PC22. use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

To be competent, the user/individual on the job must be able to:

PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research

PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion

PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

Customer Service

To be competent, the user/individual on the job must be able to:

PC26. identify different types of customers

PC27. identify and respond to customer requests and needs in a professional manner.

PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

To be competent, the user/individual on the job must be able to:

PC29. create a professional Curriculum vitae (Résumé)

PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

PC31. apply to identified job openings using offline /online methods as per requirement

PC32. answer questions politely, with clarity and confidence, during recruitment and selection

PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills and different learning and employability related portals

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

KU6. importance of career development and setting long- and short-term goals

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

KU10. different types of financial institutes, products, and services

KU11. how to compute income and expenditure

KU12. importance of maintaining safety and security in offline and online financial transactions

KU13. different legal rights and laws

KU14. different types of digital devices and the procedure to operate them safely and securely

KU15. how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

KU16. how to identify business opportunities

KU17. types and needs of customers

KU18. how to apply for a job and prepare for an interview

KU19. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read and write different types of documents/instructions/correspondence

GS2. communicate effectively using appropriate language in formal and informal settings

GS3. behave politely and appropriately with all
GS4. how to work in a virtual mode
GS5. perform calculations efficiently
GS6. solve problems effectively
GS7. pay attention to details
GS8. manage time efficiently
GS9. maintain hygiene and sanitization to avoid infection

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	**1**	**1**	**-**	**-**
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
Constitutional values – Citizenship	**1**	**1**	**-**	**-**
PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
PC4. follow environmentally sustainable practices	-	-	-	-
Becoming a Professional in the 21st Century	**2**	**4**	**-**	**-**
PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
Basic English Skills	**2**	**3**	**-**	**-**
PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
Career Development & Goal Setting	**1**	**2**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
Communication Skills	**2**	**2**	**-**	**-**
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
PC13. work collaboratively with others in a team	-	-	-	-
Diversity & Inclusion	**1**	**2**	**-**	**-**
PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
Financial and Legal Literacy	**2**	**3**	**-**	**-**
PC16. select financial institutions, products and services as per requirement	-	-	-	-
PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
Essential Digital Skills	**3**	**4**	**-**	**-**
PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Entrepreneurship	**2**	**3**	**-**	**-**
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
Customer Service	**1**	**2**	**-**	**-**
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	**2**	**3**	**-**	**-**
PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
NOS Total	**20**	**30**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0102
NOS Name	Employability Skills (60 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	NA
Next Review Date	28/02/2026
NSQC Clearance Date	28/02/2023

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down the proportion of marks for Theory and Skills Practical for each PC.

2. The assessment for the theory part will be based on the knowledge bank of questions created by the SSC.

3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/optional set of NOS.

4. Individual assessment agencies will create unique question papers for the theory part for each candidate at each examination/training center (as per assessment criteria below).

5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.

6. To pass the Qualification Pack assessment, every trainee should score a minimum of 70% of % aggregate marks to successfully clear the assessment.

7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 70

(**Please note**: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N8101.Adhere to sanitation and safety guidelines of the lab	30	40	-	30	100	10
AGR/N8112.Collect soil and water sample	25	55	-	20	100	10
AGR/N8113.Pack, Label and Dispatch the soil and water samples to Soil & Water Testing Laboratory	30	40	-	30	100	10
AGR/N8105.Register and prepare samples for analysis in soil lab	30	50	-	20	100	20
AGR/N8106.Assist in calibration of equipment and prepare solutions for analysis in the lab	25	50	-	25	100	25
AGR/N8107.Assist the Lab Analyst in uploading and distribution of Soil and Water Health Card	25	55	-	20	100	10
AGR/N8114.Use soil testing kit for soil nutrient analysis	30	50	-	20	100	10
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	5
Total	**215**	**370**	**-**	**165**	**750**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
GPS	Global Positioning System
GIS	Geographic Information System

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.