



Model Curriculum

QP Name: Plant Health Assistant

QP Code: AGR/Q6111

Version: 1.0

NSQF Level: 2

Model Curriculum Version: 1.0

Agriculture Skill Council of India || Unit No. 101, First Floor, Greenwoods Plaza,
Block 'B', Greenwoods City, Sector 45, Gurugram -122009, Haryana.

Table of Contents

Training Parameters.....	3
Program Overview	4
Training Outcomes.....	4
Compulsory Modules.....	4
Module 1: Introduction to the role of a Plant Hospital Assistant.....	6
Module 2: Process of planning and planting trees, woody plants and shrubs.....	7
Module 3: Process of performing pest, disease and nutrient management of trees, woody plants and shrubs.....	11
Module 4: Process of performing general maintenance of trees.....	15
Module 5: Employability Skills	16
Annexure.....	18
Trainer Requirements	18
Assessor Requirements.....	20
Assessment Strategy.....	22
References	27
Glossary.....	27
Acronyms and Abbreviations.....	28

Training Parameters

Sector	Agriculture
Sub-Sector	Forestry, Environment and Renewable Energy Management
Occupation	Arboriculture
Country	India
NSQF Level	2
Aligned to NCO/ISCO/ISIC Code	NCO-2015/6112.9900
Minimum Educational Qualification and Experience	No formal education
Pre-Requisite License or Training	NA
Minimum Job Entry Age	NA
Last Reviewed On	29/09/2023
Next Review Date	29/09/2026
NSQC Approval Date	29/09/2023
QP Version	1.0
Model Curriculum Creation Date	31/08/2023
Model Curriculum Valid Up to Date	29/09/2026
Model Curriculum Version	1.0
Minimum Duration of the Course	210 Hours
Maximum Duration of the Course	210 Hours

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills to:

- Demonstrate the process of planning and planting trees, woody plants and shrubs.
- Demonstrate the process of performing pest, disease and nutrient management of trees, woody plants and shrubs.
- Describe the process of performing general maintenance of trees.
- Demonstrate various practices to ensure health and safety at work.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/N6143: Carry out planting of trees, woody plants and shrubs NOS Version- 1.0 NSQF Level- 2	25:00	35:00	0:00	00:00	60:00
Bridge Module Module 1: Introduction to the role of a Plant Health Assistant	05:00	0:00	0:00	00:00	05:00
Module 2: Process of planning and planting trees, woody plants and shrubs	20:00	35:00	0:00	00:00	55:00
AGR/N6144: Carry out pest, disease and nutrient management of trees, woody plants and shrubs NOS Version- 1.0 NSQF Level- 2	20:00	40:00	0:00	00:00	60:00
Module 3: Process of performing pest, disease and nutrient management of trees, woody plants and shrubs	20:00	40:00	0:00	00:00	60:00
AGR/N6145: Carry out general maintenance of trees	30:00	30:00	0:00	00:00	60:00

NOS Version- 1.0 NSQF Level- 2					
Module 4: Process of performing general maintenance of trees	30:00	30:00	0:00	00:00	60:00
DGT/VSQ/N0101: Employability Skills (30 Hours) NOS Version- 1.0 NSQF Level- 2	30:00	00:00	0:00	00:00	30:00
Module 5: Employability Skills	30:00	00:00	0:00	00:00	30:00
Total Duration	105:00	105:00	0:00	00:00	210:00

Module Details

Module 1: Introduction to the role of a Plant Health Assistant

Bridge Module, Mapped to AGR/N6143 v1.0

Terminal Outcomes:

- Discuss the job role of a Plant Health Assistant .

Duration: 05:00	Duration: 0:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe the size and scope of the agriculture industry and its sub-sectors. • Discuss the role and responsibilities of a Plant Health Assistant • Identify various employment opportunities for a Plant hospital/health assistant 	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	

Module 2: Process of planning and planting trees, woody plants and shrubs

Mapped to AGR/N6143 v1.0

Terminal Outcomes:

- Explain the process of selecting the site and tree/woody plant/shrub species.
- Describe the process of preparing the layout and arrange the resources.
- Describe the process of preparing the site for planting.
- Demonstrate the process of planting trees, woody plants and shrubs.
- Demonstrate the process of setting up stakes, support and windbreaks.

Duration: 20:00	Duration: 35:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Elucidate the scope and nature of arboriculture or vriksh sanrakshan. • Explain the basics of horticulture. • Explain different types of plant and tree species, e.g. deciduous trees (maple, birch betula, ash, oak, etc.). • Explain the biology of trees, i.e. photosynthesis, respiration, transpiration, vernalization, etc. • Discuss the identification of different types of native and exotic plant and tree species. • Explain different types of soils suitable for a variety of trees. • Discuss the structures of different types of soils. • Describe the process of identifying the appropriate spots at the recommended planting density for planting trees, woody plants and shrubs to ensure their optimum growth. • List different species of trees, woody plants and shrubs suitable for growing in different climate zones and soil conditions. • State the criteria to identify the appropriate tree species to be grown in different agro-climatic zones. • State the criteria for establishing a tree plantation at a specific site, considering the site restrictions, 	<ul style="list-style-type: none"> • Prepare a sample layout planning the placement of varieties of trees, plants and shrubs to ensure aesthetics and no obstructions and disruptions to utilities. • Demonstrate the process removing any debris and digging holes of the recommended dimensions. • Demonstrate the process of applying the recommended organic and inorganic fertilizers in the holes before planting. • Show how to prepare seed balls for the relevant seed varieties to aid their handling and germination. • Demonstrate the process of propagating tree seedlings/ saplings following the appropriate propagation methods. • Demonstrate the process of planting the selected trees, woody plants and shrubs appropriately, maintaining the planned planting density. • Demonstrate the process of transplanting the tree seedlings/ saplings taking the appropriate precautions to ensure their survival. • Show how to apply the recommended organic or inorganic fertilizers to the trees, plants and shrubs immediately after planting. • Demonstrate the process of installing stakes to train the growth of trees,

<p>costs, functions, etc.</p> <ul style="list-style-type: none"> • Describe the process of designing tree plantations, considering the factors such as the soil profile, climate suitability for selected tree species, the influence of trees on buildings and utilities, etc. • Explain the importance of checking trees, plants and shrubs while procuring them to ensure they are free from pests and diseases. • State the recommended temperature and humidity for storing the procured trees, woody plants and shrubs. • Explain different seed propagation techniques. • Elucidate how to propagate the appropriate tree varieties in a nursery and how to maintain the nursery stock. • Discuss the relevant plant establishment programs. • State the environments hostile to tree growth. • Explain the process of preparing organic fertilizers, such as manure and Farm Yard Manure (FYM), using green and animal waste. • Discuss the importance of prioritizing the use of organic fertilizers over inorganic fertilizers • Explain the importance of using inorganic fertilizers judiciously to maintain the soil health. • Elucidate the appropriate care to be provided after planting to help plants and trees establish. • Describe the process of planting advanced-sized trees and bare-rooted plants. • Describe the process of transplanting trees and the use of tree guards. • Describe the process of acclimatizing different types of plants and trees. • Explain the benefits of planting fire, 	<p>plants and shrubs.</p> <ul style="list-style-type: none"> • Demonstrate the process of setting up appropriate support/aids to train plants into decorative shapes. • Demonstrate the process of planting appropriate types of trees as windbreaks to protect young and tender plants from strong winds. • Show how to create pergolas around plants for improved support. • Demonstrate the process of installing decorative tree guards. • Demonstrate the process of setting up lacy ironwork trellis or wooden lattice for climbers. • Demonstrate the process of installing appropriate support to provide support to heavy and large trees.
---	---

<p>acid, saline and frost-resistant trees.</p> <ul style="list-style-type: none"> • Explain the importance of planting hardy trees in city areas. • State the influence of trees on buildings and the appropriate considerations. • Explain the importance of ensuring efficient drainage of water to prevent waterlogging at the planting spots. • Explain the importance and process of installing appropriate support such as stakes to train the growth of trees, woody plants and shrubs as desired. • Explain how to protect the planted trees, plants and shrubs from strong winds, extreme heat/ cold and astray animals. • List the key consideration for choosing the right tree for the site to maximize its benefits. • List various essential tree nutrition required for their optimum growth. • Discuss general horticulture practices, such as seedbed/nursery bed preparation, sowing/planting varieties of seeds/plants, fertilizer and pesticide application, weeding, training, pruning, etc. • Provide a brief introduction to practices, such as garden management, park management, land rehabilitation, etc. • Explain different approaches to land rehabilitation. • Explain different types of soil appropriate for growing trees. • Explain how to determine the need to install support for trees and plants. • Explain the importance of installing windbreaks, different types of windbreak designs. • Explain how to support a heavy crop of flowers or fruit. • Explain how to support non-clinging 	
--	--

climbers.	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Temperature monitoring device, Fertilizer, Pesticide, Blocks and pulleys, Light and heavy-duty slings, Friction brakes, Rigging plates etc.	

Module 3: Process of performing pest, disease and nutrient management of trees, woody plants and shrubs

Mapped to ARG/N6144 v1.0

Terminal Outcomes:

- Demonstrate the process of performing pest and disease management.
- Demonstrate the process of performing soil, nutrient and irrigation management.

Duration: 20:00	Duration: 40:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the basics of tree and plant anatomy and taxonomy, plant pathology, and soil science. • Discuss the applicable arboriculture, horticulture, and landscaping practices and methods. • Elucidate the importance and process of examining trees, plants and shrubs regularly to identify pest, insect and disease infestation. • Explain different classifications of insects and the relevant control measures. • State the control measures for the relevant non-insect pests. • Explain the importance of conducting regular tree and soil inspections, and observing trees growing in a wide variety of conditions for relevant problems. • Elucidate different types of health problems experienced by trees and appropriate treatments for them. • Explain the importance of examining trees, plants and shrubs regularly to identify pest, insect and disease infestation. • List the symptoms of infestation by different types of pests, insects and diseases that affect trees, woody plants and shrubs, such as blight and fungal infection. • Describe the process of diagnosing tree problems. 	<ul style="list-style-type: none"> • Demonstrate how to conduct a pre-work inspection to identify biotic hazards, such as bees and poisonous plants and take appropriate preventive measures. • Show how to remove termite infestation from trees. • Demonstrate the process of applying the recommended pesticides and insecticides to trees, plants and shrubs as per the prescription, using the relevant tools, equipment and Personal Protective Equipment (PPE). • Prepare a sample manual and/or electronic record concerning the use of pesticides in the physical registers and the relevant computer application. • Demonstrate the process of applying the recommended treatment in the soil to adjust the pH level. • Demonstrate the process of checking the pH levels in the soil using a pH meter and applying the recommended treatment to adjust the pH level.

- State the appropriate treatment for heat stress, frost damage and bark wounds.
- Explain the ecology of soils and plant health.
- Describe the process of determining the damage caused to trees by pests and insects and whether they can be saved through treatment or need to be felled.
- Explain the benefits and potential risks of using different types of pesticides.
- Discuss the recommended practices to be followed to prevent adverse effects of pesticides in the surroundings of trees, plants and shrubs.
- Explain how to deal with chemical poisoning.
- State the recommended level of moisture to be maintained in the soil for the healthy growth of trees, woody plants and shrubs.
- Explain how to balance soil composition and maintain correct moisture levels through watering and training.
- Explain the importance of ensuring efficient drainage around trees, plants and shrubs to prevent damages caused by waterlogging.
- Explain the importance of monitoring and maintaining the appropriate soil conditions for the healthy growth of trees, plants and shrubs.
- Describe the process of getting the soil tested by an approved soil testing lab and applying the prescribed treatment to maintain the required macro and micronutrient levels.
- List the appropriate organic and inorganic fertilizers to be applied to a variety of soils for the healthy growth of trees, plants and shrubs.
- State the recommended irrigation

<p>schedule for different species of trees, woody plants, and shrubs.</p> <ul style="list-style-type: none"> • Explain the importance of applying the recommended organic and inorganic fertilizers to the soil in the recommended quantity for the healthy growth of trees, plants and shrubs. • Explain the main characteristics of common tree genera and the terminology needed for their identification. • Explain various biotic and abiotic disorders relevant to arboriculture. • Explain how to diagnose different types of disorders in trees and the appropriate treatment to be given for them. • State basic tree nutrition requirements. • List the appropriate fertilizers for trees and different fertilizer application methods. • Explain the need and process of pruning trees. • Explain the requirement of training different types of trees and plants and the use of different types of training materials. • Elucidate the symptoms of different types of pest and disease infestation in plants and trees and the appropriate organic and inorganic control measures. • Explain the symptoms of pest infestation in different types of plants and trees, and the appropriate organic and inorganic control measures. • Explain the biological control measures for tree pests and diseases. • Explain the use of various equipment for tree maintenance. • Explain tree injection technique and its applications. 	
---	--

<ul style="list-style-type: none"> • Describe the process of analyzing different specimens of mature trees from each different genera to detect any patterns in problems occurring in those trees. • State the appropriate stage of tree growth for the application of fertilizers. • Explain the advantages and disadvantages of various fertilizer application methods. • Discuss the potential damage lightning may cause to trees and the techniques for installing appropriate protection. • List the appropriate measures to be taken to foster tree stability and health in the urban landscape. • Discuss the appropriate planting techniques crucial for tree survival, establishment, and longevity. • Discuss the arboriculture pest management techniques. • Discuss the arboriculture plant health and pest control practices. • Explain how urban soils can limit root growth and development, and how soils can be improved to foster tree growth. • Discuss how soil structure and the environment affect water availability for trees. • Discuss the strategies to be adopted to protect trees during construction. • Explain the basic principles of tree risk assessment. 	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Saw scabbards, Landscaping tools, Pruners, Chainsaws, Wood chippers etc.	

Module 4: Process of performing general maintenance of trees

Mapped to ARG/N6145 v1.0

Terminal Outcomes:

- Describe the process of performing tree cleaning.
- Describe the process of treating the physical damage on trees.
- Describe the process of treating tree poisoning and remove nails and tree guards.
- Elucidate ways to move trees and create and place nests on trees.

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe the process of performing the cleaning of trees and the appropriate cleaning solutions to be used • Explain how to assess physical damage on trees and treat them. • Describe the process of plastering tree branches and using the recommended treatment and aids. • State the recommended treatment to be applied to heal the tree parts with their bark removed. • Explain how to treat the cracks on trees. • Explain the symptoms of poisoning in trees and the appropriate treatment for treating it. 	<ul style="list-style-type: none"> • Demonstrate how to remove mosses from trees. • Demonstrate the process of performing cleaning of trees using water and the appropriate cleaning solutions. • Demonstrate the process of applying the recommended treatment to heal the tree parts with their bark removed. • Show how to remove the nails using the appropriate tools and equipment, ensuring minimum damage to trees. • Show how to remove the outgrowth of sacred fig (peepal) tree from residential areas and re-transplant it in the appropriate places. • Show how to create nests and place them appropriately on trees.
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Saw scabbards, Landscaping tools, Pruners, Chainsaws, Wood chippers, Tree loopers, Different types of axes and wedges, Hatchets, Hydraulic tools, Pole saws etc.	

Module 5: Employability Skills

Mapped to NOS DGT/VSQ/N0101 v1.0

Duration: 30:00

Key Learning Outcomes

Introduction to Employability Skills Duration: 1 Hour

After completing this programme, participants will be able to:

1. Discuss the importance of Employability Skills in meeting the job requirements

Constitutional values - Citizenship Duration: 1 Hour

2. Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen.
3. Show how to practice different environmentally sustainable practices

Becoming a Professional in the 21st Century Duration: 1 Hours

4. Discuss 21st century skills.
5. Display positive attitude, self -motivation, problem solving, time management skills and continuous learning mindset in different situations.

Basic English Skills Duration: 2 Hours

6. Use appropriate basic English sentences/phrases while speaking

Communication Skills Duration: 4 Hour

7. Demonstrate how to communicate in a well -mannered way with others.
8. Demonstrate working with others in a team

Diversity & Inclusion Duration: 1 Hour

9. Show how to conduct oneself appropriately with all genders and PwD
10. Discuss the significance of reporting sexual harassment issues in time

Financial and Legal Literacy Duration: 4 Hours

11. Discuss the significance of using financial products and services safely and securely.
12. Explain the importance of managing expenses, income, and savings.
13. Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws

Essential Digital Skills Duration: 3 Hours

14. Show how to operate digital devices and use the associated applications and features, safely and securely
15. Discuss the significance of using internet for browsing, accessing social media platforms, safely and securely

Entrepreneurship Duration: 7 Hours

16. Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges

Customer Service Duration: 4 Hours

17. Differentiate between types of customers

18. Explain the significance of identifying customer needs and addressing them
19. Discuss the significance of maintaining hygiene and dressing appropriately

Getting ready for apprenticeship & Jobs Duration: 2 Hours

20. Create a biodata
21. Use various sources to search and apply for jobs
22. Discuss the significance of dressing up neatly and maintaining hygiene for an interview
23. Discuss how to search and register for apprenticeship opportunities

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Diploma	Diploma (Agriculture/ Horticulture/ Forestry)	5	Experience in Arboriculture/ Care & management of trees/ Woody Plants			Experience certificate issued by Government Department of Agriculture/ Head of Gram Panchayat/ Loan disbursing bank or financial institution/ Corporates/ NGO/ Registered Associations on official letter Head.
Graduate	Any Graduate with Botany background except degree in Agriculture/ Forestry/ Horticulture	2	Experience in Arboriculture/ Care & management of trees/ Woody plants			Experience is required in Arboriculture For the school Program minimum qualification of the Trainer should be Graduate in Botany / Agriculture & Agri-Allied Sector with Teaching experience of minimum 2 years, (will be considered industry experience
Certificate	CITS in relevant field	2	Experience in Arboriculture/ Care & management of trees/ Woody plants			
Graduate	Agriculture/ Forestry, Horticulture or related field	1	Experience in Arboriculture/ Care & management of trees/ Woody plants			
Post Graduate	Agriculture/ Horticulture/ Forestry/ Botany					

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role “Plant Health Assistant”, mapped to QP: “AGR/Q6111, v1.0”, Minimum accepted score is 80%	Recommended that the Trainer is certified for the Job Role: “Trainer (Vet and Skills)”, mapped to the Qualification Pack: “MEP/Q2601, v2.0”. The minimum accepted score as per MEPSC guidelines is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduation	BSc (Arboriculture/ Forestry/ Silviculture/ Horticulture)	5	In arboriculture/ Care & management of trees/ Woody plants			Practical skills and knowledge required in planting, maintaining, removing, managing trees, woody plants and shrubs.
Post-graduation	MSc (Arboriculture/ Forestry/ Silviculture/ Horticulture)	2	In arboriculture/ Care & management of trees/ Woody plants			Practical skills and knowledge required in planting, maintaining, removing, managing trees, woody plants and shrubs.
PhD	Ph. D (Arboriculture/ Forestry/ Silviculture/ Horticulture)	1	In arboriculture/ Care & management of trees/ Woody plants			Practical skills and knowledge required in planting, maintaining, removing, managing trees, woody plants and shrubs.

Assessor Certification	
Domain Certification	Platform Certification
Certified for Job Role “Plant Health Assistant”, mapped to QP: “AGR/Q6111, v1.0”, Minimum accepted score is 80%	Certified for the Job Role: “Assessor (Vet and Skills)”, mapped to the Qualification Pack: “MEP/Q2701, v2.0”, with a minimum score of 80%.

Assessment Strategy

Assessment System Overview

In Agriculture Sector it is of ultimate importance that individuals dealing with crop production or livestock have the requisite knowledge and competencies to undertake the task. Based on the Assessment Criteria, SSC in association with empaneled AAs, define the test structure for the given job roles to cover the required skills and competencies. Assessment strategy consists of the following:

1. Multiple Choice Questions: To assess basic knowledge (Objective/Subjective)
2. Viva: To assess awareness on processes (Oral and/or written questioning)
3. Practical: To evaluate skills and identify competencies. (Observation)

Assessments for knowledge and awareness on processes may be conducted through 'real-time' internet-based evaluation or by conducting the same 'offline' through TABs. Skills and competencies are to be assessed by conducting 'practical' on the ground through qualified and ToA certified assessors.

An individual must have adequate knowledge and skills to perform a specific task, weightage for different aspects of the assessment is given as follows:

- Multiple Choice Questions: 20%-30%, depending on the specific QP
- Viva: 20%
- Practical: 50% - 60% (Involves demonstrations of applications and presentations of procedures/tasks and other components)
- Assessment will be carried out by certified assessors through empaneled assessment partners. Based on the results of the assessment; ASCI will certify the learners/candidates

Testing Environment

Assessments are conducted on laptops, Mobiles and android tablets via both offline and online mode depending on the internet connectivity at the assessment location.

In remote locations/villages, assessments get delivered through tablets without the requirement of the Internet.

- Multilingual assessments (ASCI is conducting the assessments in 13 + languages pan India)
- Rubric driven assessments in Practical/Viva sections and responses recorded accordingly
- All responses, data, records and feedback stored digitally on the cloud
- Advanced auto-proctoring features – photographs, time-stamp, geographic-tagging, toggle- screen/copy-paste disabled, etc.
- Android-based monitoring system
- End to end process from allocation of a batch to final result upload, there is no manual intervention

- Assessment will normally be fixed for a day after the end date of the training / within 7 days of completion of training.
- Assessment will be conducted at the training venue
- The room where assessment is conducted will be set with proper seating arrangements with enough space to curb copying or other unethical activities
- Question bank of theory and practice will be prepared by ASCI /assessment agency and approved ASCI. Only from approved Question Bank assessment agency will prepare the question paper. Theory testing will include multiple-choice questions, pictorial questions, etc. which will test the trainee on his theoretical knowledge of the subject.
- The theory, practical and viva assessments will be carried out on the same day. In case of a greater number of candidates, the number of assessors and venue facilitation be increased and facilitated

Assessment			
Assessment Type	Formative or Summative	Strategies	Examples
Theory	Summative	MCQ/Written exam	Knowledge of facts related to the job role and functions. Understanding of principles and concepts related to the job role and functions
Practical	Summative	Structured tasks/Demonstration	Practical application /Demonstration /Application tasks
Viva	Summative	Questioning and Probing	Mock interviews on the usability of job roles/advantages /importance of adherence to procedures. Viva will be used to gauge trainee's confidence and correct knowledge in handling the job situation

The question paper pre-loaded in the computer /Tablet and it will be in the language as requested by the training partner.

Assessment Quality Assurance framework

Assessment Framework and Design:

Based on the Assessment Criteria, SSC in association with AAs will define the test structure for the given roles to cover the required skills and competencies. ASCI offer a bouquet of tools for multi-dimensional evaluation of candidates covering language, cognitive skills, behavioural traits and domain knowledge.

Theoretical Knowledge - Item constructs and types are determined by a theoretical understanding of the testing objectives and published research about the item types and constructs that have shown statistical validity towards measuring the construct. Test item types that have been reported to be coachable are not included. Based on these, items are developed by domain experts. They are provided with comprehensive guidelines of the testing objectives of each question and other quality measures.

Type – Questions based on Knowledge Required, Case-based practical scenario questions and automated simulation-based questions.

Practical Skills - The practical assessments are developed taking into consideration two aspects: what practical tasks is the candidate expected to perform on the job and what aspects of the job cannot be judged through theoretical assessments. The candidates shall be asked to perform either an entire task or a set of subtasks depending on the nature of the job role

Type – Standardized rubrics for evaluation against a set of tasks in a demo/practical task

Viva Voce - Those practical tasks which cannot be performed due to time or resource constraints are evaluated through the viva mode. Practical tasks are backed up with Viva for thorough assessment and complete evaluation

Type – Procedural questions, dos and don'ts, subjective questions to check the understanding of practical tasks.

The assessor has to go through an orientation program organized by the Assessment Agency. The training would give an overview to the assessors on the overall framework of QP evaluation. The assessor shall be given a NOS and PC level overview of each QP as applicable. The overall structure of assessment and objectivity of the marking scheme will be explained to them. The giving of marks will be driven by an objective framework that will maintain the standardization of the marking scheme.

Type of Evidence and Evidence Gathering Protocol:

During the assessment the evidence collected by AAs and ASCI are:

- GeoTagging to track ongoing assessment
- AA's coordinator emails the list of documents and evidence (photos and videos) to the assessor one day before the assessment. The list is mentioned below:
 - Signed Attendance sheet
 - Assessor feedback sheet
 - Candidate feedback sheet

- Assessment checklist for assessor
 - Candidate Aadhar/ID card verification
 - Pictures of the classroom, labs to check the availability of adequate equipment's and tool to conduct the training and assessment
 - Pictures and videos of Assessment, training feedback and infrastructure.
- Apart from the Assessor, a Technical assistant is popularly known as Proctor also ensures the proper documentation and they verify each other's tasks.
- To validate their work on the day of the assessment, regular calls and video calls are done.
- On-boarding and training of assessor and proctor is done on a timely basis to ensure that the quality of the assessment should be maintained.
- Training covers the understanding of QP, NSQF level, NOS and assessment structure

Methods of Validation

- Morning Check (Pre-Assessment): Backend team of AA calls and confirms assessor/technical SPOC event status. Assessor/Technical SPOC are instructed to reach the centre on time by 9:30 AM / as decided with TC and delay should be highlighted to the Training Partner in advance.
- Video Calls: Random video calls are made to the technical SPOC/assessor so as to keep a check on assessment quality and ensure assessment is carried out in a fair and transparent manner
- Aadhar verification of candidates
- Evening Check (Post Assessment): Calls are made to the ground team to ensure the event is over by what time and the documentation is done properly or not.
- TP Calling: To keep a check on malpractices, an independent audit team calls the TP on a recorded line to take confirmation if there was any malpractice activity observed in the assessment on part of the AA/SSC team. If calls are not connected, an email is sent to TP SPOC for taking their confirmation
- Video and Picture Evidence: Backend team collects video and pictures for assessment on a real-time basis and highlights any issue such as students sitting idle/ trainer helping the candidates during the assessment.
- Surprise Visit: Time to time SSC/AA Audit team can visit the assessment location and conduct a surprise audit for the assessment carried out by the ground team.
- Geo Tagging: On the day of the assessment, each technical SPOC is required to login into our internal app which is Geotagged. Any deviation with the centre address needs to be highlighted to the assessment team on a real-time basis.

Method for assessment documentation, archiving, and Access:

- ASCI have a fully automated result generation process in association with multiple AAs
- Theory, Practical and Viva marks form the basis of the results and encrypted files generated to avoid data manipulation. All responses were captured and stored in the System with Time-Stamped at the end of AAs and SSC. NOS-wise and PC-wise scores can

be generated.

- Maker Checker concept: One person prepares the results and another audit result which is internally approved by AA at first and then gets vetted at the end of SSC
- All softcopies of documents are received from the on-ground tech team over email. The same is downloaded by our internal backend team and saved in Repository. The repository consists of scheme-wise folders. These scheme-wise folders have two job role-specific folders. These specific folders have Year wise and Month wise folders where all documents are saved in Batch specific folders. All Hard copies are filed and stored in the storeroom.

Result Review & Recheck Mechanism –

- Time-stamped assessment logs
- Answer/Endorsement sheets for each candidate
- Attendance Sheet
- Feedback Forms: Assessor feedback form, Candidate feedback form, TP feedback form
- The results for each of the candidate shall be stored and available for review (retained for 5 years/ till the conclusion of the project or scheme)

References

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
AGR	Agriculture
NOS	National Occupational Standard (s)
NSQF	National Skills Qualifications Framework
OJT	On-the-job Training
QP	Qualifications Pack
PwD	People with Disability
PPE	Personal Protective Equipment