Model Curriculum

QP Name: Cold Storage Manager

QP Code: AGR/Q7506

Version: 2.0

NSQF Level: 6

Model Curriculum Version: 1.0

Agriculture Skill Council of India || Agriculture Skill Council of India (ASCI), 6th Floor, GNG Tower, Plot No. 10, Sector - 44

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Training Parameters

Sector	Agriculture
Sub-Sector	Agriculture Industries
Occupation	Post-Harvest Supply Chain Management
Country	India
NSQF Level	6
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7127
Minimum Educational Qualification and Experience	Pursuing first year of 2-year PG program after completing 3-year UG degree OR Pursuing PG diploma after 3-year UG degree OR Completed 4-year B.Tech/B.E/UG (in case of 4-year UG with honours/ honours with research) OR Pursuing completed 4-year B.Tech/B.E/UG (in case of 4-year UG with honours/ honours with research) OR Previous relevant qualification of NSQF Level 5.5 with 1.5 years of relevant experience OR Previous relevant qualification of NSQF Level 5 with 3 years of relevant experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	25 Years
Last Reviewed On	29/03/2023
Next Review Date	29/03/2026
NSQC Approval Date	29/03/2023
QP Version	2.0
Model Curriculum Creation Date	29/03/2023
Model Curriculum Valid Up to Date	29/03/2026
Model Curriculum Version	1.0

Minimum Duration of the Course	600 Hours
Maximum Duration of the Course	600 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:

- Describe the process of performing financial planning and management for the cold storage.
- Elucidate ways to manage the cold storage personnel and operations.
- Describe the process of performing inventory and marketer management.
- Elucidate ways to manage the record maintenance, review and audit process.
- 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
Bridge Module	**05:00**	**00:00**	**0:00**	**00:00**	**05:00**
Module 1: Introduction to the role of a Cold Storage Manager	05:00	00:00	0:00	00:00	05:00
AGR/N7523: Perform financial planning and management for the cold storage **NOS Version- 2.0** **NSQF Level- 6**	**40:00**	**45:00**	**0:00**	**00:00**	**85:00**
Module 2: Process of performing financial planning and management for the cold storage	40:00	45:00	0:00	00:00	85:00
AGR/N7525: Manage the cold storage personnel and operations **NOS Version- 2.0** **NSQF Level- 6**	**30:00**	**60:00**	**0:00**	**00:00**	**90:00**
Module 3: Process of managing the cold storage personnel and operations	30:00	60:00	0:00	00:00	90:00
AGR/N7524: Perform inventory and marketer management **NOS Version- 2.0** **NSQF Level- 6**	**55:00**	**35:00**	**0:00**	**00:00**	**90:00**

Module 4: Process of performing inventory and marketer management	55:00	35:00	0:00	00:00	90:00
AGR/N1136: Manage the record maintenance, review and audit process **NOS Version- 2.0** **NSQF Level- 6**	**45:00**	**45:00**	**0:00**	**00:00**	**90:00**
Module 5: Process of managing the record maintenance, review and audit process	45:00	45:00	0:00	00:00	90:00
AGR/N9911: Ensure adherence to health and safety guidelines at work **NOS Version- 2.0** **NSQF Level- 6**	**05:00**	**25:00**	**0:00**	**00:00**	**30:00**
Module 6: Health and Safety at work	05:00	25:00	0:00	00:00	30:00
DGT/VSQ/N0103: Employability Skills **NOS Version- 1.0** **NSQF Level- 5**	**90:00**	**00:00**	**0:00**	**00:00**	**90:00**
Module 7: Employability Skills	90:00	00:00	0:00	00:00	90:00
Total Duration	**270:00**	**210:00**	**0:00**	**00:00**	**480:00**
OJT: 120 Hours					

Module Details

Module 1: Introduction to the role of a Cold Storage Manager
Bridge Module

Terminal Outcomes:

- Discuss the job role of a Cold Storage Manager.

Duration: 05:00	Duration: 0:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Describe the size and scope of the agriculture industry and its sub-sectors. - Discuss the role and responsibilities of a Cold Storage Manager. - Identify various employment opportunities for a Cold Storage Manager.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	

Module 2: Process of performing financial planning and management for the cold storage
Mapped to AGR/N7523 v2.0

Terminal Outcomes:

- Describe the process of performing financial planning and management for the cold storage.

Duration: 40:00	Duration: 45:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain different fixed and fluctuating costs concerning the cold storage operations. - Explain different types of cold storage operational costs, e.g. resource procurement, labour, tools and equipment, etc. - Describe the process of carrying out financial planning and budgeting for the cold storage. - Explain the importance of monitoring the expenditures. - Elucidate the importance and process of analyzing the monthly expenditures and taking appropriate remedial measures. - Discuss the appropriate practices to be followed for efficient utilization of cash reserves. - Explain the importance of timely settlement of accounts payable and receivable. - Elucidate the importance and process of determining the financial position of the organization. - State the appropriate measures to be followed to improve the financial position of the organization. - Discuss the relevant institutions and schemes with the provision of credit/loan for cold storage. - Explain the importance of making timely repayment for any credit/loans. - Elucidate the importance and process of making capital expenditures for	- Demonstrate how to monitor various expenditures to ensure they are within the budget. - Show how to analyze the monthly expenditures to identify the instances of cost exceeding and take appropriate remedial measures. - Show how to monitor the cash flow and reserves and ensure efficient utilization of cash reserves.

various purposes that could lead to increased revenue for the organization.	

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

First aid box, Projector, Cold storage, Laptops/Computers, White board, Marker, Fire extinguisher, Installed Video camera with high resolution and recording facility

Module 3: Process of managing the cold storage personnel and operations
Mapped to ARG/N7525 v2.0

Terminal Outcomes:

- Explain the process of recruiting and training the personnel.
- Elucidate ways to manage the cold storage operations.
- Incorporate the non-ODS and low-GWP technologies.

Duration: 30:00	Duration: 60:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- State the requirement of different personnel in different job roles in cold storage and their job responsibilities. - Describe the process of recruiting personnel from appropriate sources and the importance of ensuring their skills align with their respective job roles. - Elucidate the importance and process of conducting appropriate training sessions for the cold storage personnel. - Elucidate the importance and process of effectively monitoring the cold storage personnel for efficient operations and achievement of organizational goals. - Explain the importance of carrying out regular inspections and maintenance of the cold storage tools, equipment, machinery and infrastructure. - Elucidate the importance and process of procuring new tools, equipment, machinery and other assets or replacing the existing ones. - Explain the importance of adopting new and innovative technologies and practices to improve the efficiency of cold storage operations. - Explain how to identify the relevant risks to cold storage operations and take appropriate measures to mitigate. - Explain the importance of ensuring compliance with the organizational quality standards and applicable regulations.	- Roleplay how to organize and conduct appropriate training sessions for the personnel as required. - Demonstrate how to monitor the trends in agricultural and horticultural produce markets. - Demonstrate how to incorporate the use of appropriate non-ODS and low-GWP technologies.

- Explain the importance of regularly checking the relevant reports to ensure the correct functioning of different units in the cold storage.

- Elucidate the importance of monitoring the trends in agricultural and horticultural produce markets and implementing appropriate changes to adapt to them.

- Explain the benefits and methods of optimizing the usage of resources such as water and electricity.

- Elucidate the criteria and process of segregating waste into appropriate categories.

- Elucidate the benefits and process of using non-ODS, low-GWP refrigerants and energy-efficient cooling technologies in the cold chain sector.

- Discuss the relevant provisions of the National Building Code (NBC) of India concerning the construction of non-ODS, low-GWP refrigerant-using cold storage.

- Explain the importance of modernizing cold storage refrigeration systems.

- Discuss the energy efficiency norms for refrigerators used in cold storage.

- Discuss the applicable Bureau of Indian Standards (BIS) on the safety for flammable and toxic refrigerants for cold storage and other segments of the cold chain.

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

First aid box, Projector, Cold storage, Laptops/Computers, White board, Marker, Fire extinguisher, Installed Video camera with high resolution and recording facility

Module 4: Process of performing inventory and marketer management
Mapped to NOS AGR/N7524 v2.0

Terminal Outcomes:

- Describe the process of performing inventory and marketer management.

Duration: 55:00	Duration: 35:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the importance of determining the existing stock levels in the cold storage and promptly ordering it from the relevant growers/ vendors.	• Demonstrate the use of the appropriate inventory management system for efficient inventory management.
• Explain the use of the relevant inventory management system for efficient inventory management.	• Roleplay how to conduct discussions with the market partners to make them aware of the cold storage services and applicable costs.
• Discuss the recommended practices to be followed for effective third-party vendor/ supplier management and conflict resolution.	• Demonstrate the process of carrying out appropriate documentation concerning the service agreement with the market partners.
• Discuss the appropriate inventory management practices.	
• Explain the importance of ensuring a consistent supply of produce according to the market demands.	
• Discuss the applicable quality standards and organizational guidelines concerning inventory management.	
• Describe the process of identifying and selecting relevant marketers for cold storage.	
• State the appropriate documentation to be carried out concerning the service agreement with the market partners.	
• Elucidate the importance of identifying and adopting new and innovative technologies to make cold storage functions more efficient.	
• State the best conditions required for storing different types of agricultural and horticultural produce in the cold storage.	
• Explain the importance of	

maintaining effective working relationships with marketers. • Discuss the recommended practices to be followed to ensure efficient cold storage operations. • Elucidate the importance of staying updated with the market price of relevant produce and getting information from reliable sources.	

Classroom Aids:

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

First aid box, Projector, Cold storage, Laptops/Computers, White board, Marker, Fire extinguisher, Installed Video camera with high resolution and recording facility

Module 5: Process of managing the record maintenance, review and audit process

Mapped to NOS AGR/N1136 v2.0

Terminal Outcomes:

- Elucidate ways to oversee the maintenance of records and review them.

- Explain the importance of arranging for the safe storage of records and audit of records.

Duration: 45:00	Duration: 45:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the use of appropriate computer software for effective management of organizational documents and records. - Explain the importance of getting the relevant personnel trained in the use of the documentation system used by the organization. - Elucidate different types of data to be maintained such as workshop assets/ expenditure/ operations. - Describe the process of reviewing records internally in the organization. - Explain the importance of arranging regular audits by an independent auditor to ensure the completion, accuracy and up-to-date status of all the relevant records and documents. - Describe the process of reviewing organizational records to evaluate the business performance and preparation of an action plan based on the review. - Describe different methods of safely storing organizational records and documents. - Explain the importance of creating data backup and ensuring data access by the authorized personnel only.	- Demonstrate how to evaluate all the relevant records and documents to ensure they are complete, accurate and up-to-date. - Demonstrate how to evaluate the business performance through the analysis of relevant records. - Prepare a sample action plan based on the review. - Show how to create backup of all the documents and records to prevent accidental loss.
Classroom Aids:	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	

First aid box, Projector, Cold storage, Laptops/Computers, White board, Marker, Fire extinguisher, Installed Video camera with high resolution and recording facility

Module 6: Health and safety at work

Mapped to NOS AGR/N9911 v2.0

Terminal Outcomes:

- Demonstrate various practices to be followed to ensure health and safety at work.

- Describe different ways to deal with emergencies at work.

Duration: 05:00	Duration: 25:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the importance of following health and safety procedures at work such as using Personal Protective Equipment (PPE). - Explain the importance of ensuring the PPE, emergency equipment and first-aid kit are usable and updated. - Explain the importance of sanitising the workplace, tools and equipment. - Explain the importance of ensuring only authorised personnel have access to hazardous work areas - Describe the process to be followed in case of emergencies such as fire, accidents, disease outbreaks or natural calamities. - Explain how to identify health and safety hazards at work and take appropriate preventive measures. - Describe the process of reporting workplace emergencies and accidents to the relevant authority in compliance with the organisational and regulatory requirements.	- Demonstrate the use of appropriate PPE. - Show how to sanitise the workplace along with the relevant tools and equipment. - Demonstrate safe handling of hazardous materials such as chemicals and flammable objects. - Show how to administer first aid to an injured person. - Demonstrate appropriate actions to take to deal with fire, accidents and emergencies. - Demonstrate the use of emergency equipment in accordance with the manufacturer's instructions.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and Software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Personal Protective Equipment, Cleaning Equipment and Materials, Sanitiser, Soap, Mask	

Module 7: Employability Skills

Mapped to NOS DGT/VSQ/N0103 v1.0

Duration: 90:00

Key Learning Outcomes

Introduction to Employability Skills Duration: 3 Hours
After completing this programme, participants will be able to:
1. Outline the importance of Employability Skills for the current job market and future of work
2. List different learning and employability related GOI and private portals and their usage
3. Research and prepare a note on different industries, trends, required skills and the available opportunities

Constitutional values – Citizenship Duration: 1.5 Hours
4. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
5. Demonstrate how to practice different environmentally sustainable practices

Becoming a Professional in the 21st Century Duration: 5 Hours
6. Discuss relevant 21st century skills required for employment
7. Highlight the importance of practicing 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life
8. Create a pathway for adopting a continuous learning mindset for personal and professional development

Basic English Skills Duration: 10 Hours
9. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
10. Read and understand text written in basic English
11. Write a short note/paragraph / letter/e -mail using correct basic English

Career Development & Goal Setting Duration: 4 Hours
12. Create a career development plan
13. Identify well-defined short- and long-term goals

Communication Skills Duration: 10 Hours
14. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette
15. Write a brief note/paragraph on a familiar topic
16. Explain the importance of communication etiquette including active listening for effective communication
17. Role play a situation on how to work collaboratively with others in a team

Diversity and Inclusion Duration: 2.5 Hours
18. Demonstrate how to behave, communicate, and conduct appropriately with all genders and PwD
19. Discuss the significance of escalating sexual harassment issues as per POSH act

Financial and Legal Literacy Duration: 10 Hours
20. Discuss various financial institutions, products, and services

21. Demonstrate how to conduct offline and online financial transactions, safely and securely and check passbook/statement
22. Explain the common components of salary such as Basic, PF, Allowances (HRA, TA, DA, etc.), tax deductions
23. Calculate income and expenditure for budgeting
24. Discuss the legal rights, laws, and aids

Essential Digital Skills Duration: 20 Hours

25. Describe the role of digital technology in day-to-day life and the workplace
26. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
27. Demonstrate how to connect devices securely to internet using different means
28. Follow the dos and don'ts of cyber security to protect against cyber crimes
29. Discuss the significance of displaying responsible online behavior while using various social media platforms
30. Create an e-mail id and follow e- mail etiquette to exchange e -mails
31. Show how to create documents, spreadsheets and presentations using appropriate applications
32. utilize virtual collaboration tools to work effectively

Entrepreneurship Duration: 7 Hours

33. Explain the types of entrepreneurship and enterprises
34. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
35. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
36. Create a sample business plan, for the selected business opportunity

Customer Service Duration: 9 Hours

37. Classify different types of customers
38. Demonstrate how to identify customer needs and respond to them in a professional manner
39. Discuss various tools used to collect customer feedback
40. Discuss the significance of maintaining hygiene and dressing appropriately

Getting ready for apprenticeship & Jobs Duration: 8 Hours

41. Draft a professional Curriculum Vitae (CV)
42. Use various offline and online job search sources to find and apply for jobs
43. Discuss the significance of maintaining hygiene and dressing appropriately for an interview
44. Role play a mock interview
45. List the steps for searching and registering for apprenticeship opportunities

Module 8: On-the-Job Training

Mapped to Cold Storage Manager

Mandatory Duration: 120:00	Recommended Duration: 00:00
Location: On-Site	

Terminal Outcomes

- Explain different fixed and fluctuating costs concerning the cold storage operations.
- Monitor various expenditures to ensure they are within the budget.
- Analyze the monthly expenditures to identify the instances of cost exceeding and take appropriate remedial measures.
- Organize and conduct appropriate training sessions for the personnel as required.
- Conduct discussions with the market partners to make them aware of the cold storage services and applicable costs.
- Evaluate all the relevant records and documents to ensure they are complete, accurate and up-to-date.
- Conduct counselling sessions with team members.

Annexure

Trainer Requirements

Trainer Prerequisites					
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	*Specialization*	*Years*	*Specialization*	
Graduate	Graduate	3	Cold Storage Management	0		For school Program minimum qualification of Trainer should be Graduate. Their Teaching experience will be considered industry experience
Post Graduate	Post Graduate Diploma/ MBA- Supply Chain management/ Agribusiness Management/ Marketing	0		0		

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role "**Cold Storage Manager**", mapped to QP: "AGR/Q7506, v2.0", 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*	
Diploma	Food processing/ Cold chain management and related streams	5	Experience in cold chain management/ SCM/ logistics or other related experience			Practical skills and knowledge required in Cold storage operations
Graduation	B.Sc / B.Tech (Agriculture/ Horticulture/ Post-Harvest/ Agri-Business/ Food processing/ Logistics/ SCM / Cold chain and related streams)	4	Experience in cold chain management/ SCM/ logistics or other related experience	0		Practical skills and knowledge required in Cold storage operations
Post-Graduation	M.Sc/ M.Tech in food processing/ Horticulture/ Cold chain/ SCM/ logistics and related streams	2	Experience in cold chain management/ SCM/ logistics or other related experience			Practical skills and knowledge required in Cold storage operations
Post-Graduation/Post-Graduate Diploma/ MBA	Agri-Business/ SCM/ Logistics/ Cold chain Food processing	2	Experience in cold chain management/ SCM/ logistics or other related experience	0		Practical skills and knowledge required in Cold storage operations
PhD	Post-Harvest/ Agri Business/ Logistics/ SCM/ Horticulture/ Food processing and related streams	1	Experience in cold chain management/ SCM/ logistics or other related experience	0		Practical skills and knowledge required in Cold storage operations

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role "**Cold Storage Manager**", mapped to QP: "AGR/Q7506, v2.0", 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. <u>Multiple Choice Questions</u>: To assess basic knowledge (Objective/Subjective)
2. <u>Viva:</u> To assess awareness on processes (Oral and/or written questioning)
3. <u>Practical:</u> 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.

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 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

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

- o Candidate feedback sheet
- o Assessment checklist for assessor
- o Candidate Aadhar/ID card verification
- o Pictures of the classroom, labs to check the availability of adequate equipment's and tool to conduct the training and assessment
- o 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-Stamps 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