



QUALIFICATION FILE

Chilling Plant Technician

☒ Short Term Training (STT) ☐ Long Term Training (LTT) ☒ Apprenticeship

☒ Upskilling ☐ Dual/Flexi Qualification ☒ For ToT ☒ For ToA

☒ General ☐ Multi-skill (MS) ☐ Cross Sectoral (CS) ☐ Future Skills ☐ OEM

NCrF/NSQF Level: 4

Submitted By:

Agriculture Skill Council of India

Unit No. 101, First Floor, Greenwoods Plaza, Block 'B', Greenwoods City, Sector 45, Gurugram -122009, Haryana.

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Section 1: Basic Details

1.	Qualification Name	Chilling Plant Technician																							
2.	Sector/s	Agriculture																							
3.	Type of Qualification: ☐ New ☒ Revised ☐ Has Electives/Options ☐ OEM	NQR Code & version of existing qualification: QG-04-AG-00319-2023-V1.1-ASCI	Qualification Name of existing/previous version: Chilling Plant Technician																						
4.	a. OEM Name b. Qualification Name (Wherever applicable)	NA																							
5.	National Qualification Register (NQR) Code &Version (Will be issued after NSQC approval)	QG-04-AG-03914-2025-V2-ASCI	6. NCrf/NSQF Level: 4																						
7.	Award (Certificate/Diploma/Advance Diploma/ Any Other (Wherever applicable specify multiple entry/exits also & provide details in annexure)	Certificate																							
8.	Brief Description of the Qualification	A Chilling Plant Technician performs work in repair, maintenance, service, modification, troubleshooting, inspection and monitoring of the operation of chilling system used for chilling milk.																							
9.	Eligibility Criteria for Entry for Student/Trainee/Learner/Employee	a. Entry Qualification & Relevant Experience: <table border="1"> <tr> <td>b.</td> <td>S. No.</td> <td>Academic/Skill Qualification (with Specialization - if applicable)</td> <td>Required Experience (with Specialization - if applicable)</td> <td rowspan="5">Age: 18 years</td> </tr> <tr> <td></td> <td>1</td> <td>12th grade pass or equivalent</td> <td></td> </tr> <tr> <td></td> <td>2</td> <td>10 grade pass</td> <td>3 years of relevant experience in agriculture and allied</td> </tr> <tr> <td></td> <td>3</td> <td>Previous NSQF level 3.5</td> <td>1.5 years of relevant experience in dairy and related fields</td> </tr> <tr> <td></td> <td>4</td> <td>Previous NSQF level 3</td> <td>3 years of relevant experience in dairy and related fields</td> </tr> </table>			b.	S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	Age: 18 years		1	12 th grade pass or equivalent			2	10 grade pass	3 years of relevant experience in agriculture and allied		3	Previous NSQF level 3.5	1.5 years of relevant experience in dairy and related fields		4	Previous NSQF level 3	3 years of relevant experience in dairy and related fields
b.	S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	Age: 18 years																					
	1	12 th grade pass or equivalent																							
	2	10 grade pass	3 years of relevant experience in agriculture and allied																						
	3	Previous NSQF level 3.5	1.5 years of relevant experience in dairy and related fields																						
	4	Previous NSQF level 3	3 years of relevant experience in dairy and related fields																						
10.	Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrf))	13	11. Common Cost Norm Category (I/II/III) (wherever applicable): I																						
12.	Any Licensing requirements for Undertaking Training on This	NA																							

	Qualification (wherever applicable)																							
13.	Training Duration by Modes of Training Delivery (Specify Total Duration as per selected training delivery modes and as per requirement of the qualification)	☒ Offline ☐ Online ☐ Blended																						
		<table border="1"> <thead> <tr> <th>Training Delivery Modes</th><th>Theory (Hours)</th><th>Practical (Hours)</th><th>OJT Mandatory (Hours)</th><th>OJT Recommended (Hours)</th><th>Total (Hours)</th></tr> </thead> <tbody> <tr> <td>Classroom (offline)</td><td>150</td><td>120</td><td>120</td><td></td><td>390</td></tr> <tr> <td>Online</td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)	Classroom (offline)	150	120	120		390	Online						(Refer Blended Learning Annexure for details)			
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																			
Classroom (offline)	150	120	120		390																			
Online																								
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO-2015/8160.9900																						
15.	Progression path after attaining the qualification (Please show Professional and Academic progression)	Chilling plant technician (L4), Milk Procurement & Input Supervisor(L5)																						
16.	Other Indian languages in which the Qualification & Model Curriculum are being submitted	Hindi																						
17.	Is similar Qualification(s) available on NQR-if yes, justification for this qualification	☐ Yes ☒ No URLs of similar Qualifications:																						
18.	Is the Job Role Amenable to Persons with Disability	☒ Yes ☐ No If "Yes", specify applicable type of Disability: <i>SHI</i>																						
19.	How Participation of Women will be Encouraged	Batches specific to women will be formed																						
20.	Are Greening/ Environment Sustainability Aspects Covered (Specify the NOS/Module which covers it)	☒ Yes ☐ No DGT/VSQ/N0102 (v1.0)																						
21.	Is Qualification Suitable to be Offered in Schools/Colleges	Schools ☒ Yes ☐ No Colleges ☒ Yes ☐ No																						
22.	Name and Contact Details of Submitting / Awarding Body SPOC (In case of CS or MS, provide details of both Lead AB & Supporting ABs)	Name: Ms Purnambica K Email: standards@asci-india.com Website: www.asci-india.com Contact No.: 0124-4670029																						
23.	Final Approval Date by NSQC: 08-05-2025	24. Validity Duration: 3 years post NSQC Approval			25. Next Review Date: 08-05-2028																			

Section 2: Module Summary

NOS/s of Qualifications

(In exceptional cases these could be described as components)

Mandatory NOS/s:

Specify the training duration and assessment criteria at NOS/ Module level. For further details refer curriculum document.

Th.-Theory **Pr.**-Practical **OJT**-On the Job **Man.**-Mandatory Training **Rec.**-Recommended **Proj.**-Project

S. No	NOS/Module Name	NOS/ Module Code & Version (if applicable)	Core/ Non- Core	NCrF/ NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT- Man.	OJT- Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
1	Prepare and Maintain Work Area and Chilling Equipment	AGR/N4220 (v3.0)	Core	4	2	30	30			60	34	36		30	100	20
2	Handle Refrigeration Unit for Chilling and Storing Milk	AGR/N4221 (v3.0)	Core	4	3	30	60			90	34	43		23	100	30
3	Complete Documentation and Record-keeping Related to the Chilling Plant	AGR/N4222 (v3.0)	Core	4	1	10	20			30	38	35		27	100	15
4	Ensure Safety, Hygiene and Sanitation for Storage of Milk in a Chilling Plant activities for small enterprise	AGR/N4223 (v3.0)	Core	4	1	20	10			30	39	30		31	100	25
5	Employability Skills (60 Hours)	DGT/VSQ/ N0102 (v1.0)	Non-Core	4	2	60				60	20	30			50	10
6	OJT (Mandatory)				4			120		120						
Duration (in Hours) / Total Marks					13	150	120	120		390	165	174		111	450	100

Assessment - Minimum Qualifying Percentage

Please specify **any one** of the following:

Minimum Pass Percentage – Aggregate at qualification level: 70 % (Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)

Minimum Pass Percentage – NOS/Module-wise: ____% (Every Trainee should score specified minimum passing percentage in each mandatory and selected elective NOS/Module to successfully clear the assessment.)

Section 3: Training Related

1.	Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	Diploma (Veterinary/Animal Husbandry/Dairying) with 5 years of relevant industry experience in chilling plant operations* *Regular Diploma more than 15 months in veterinar y/Animal Husband ry / Dairying OR Graduate (Science) with 2 years of relevant industry experience in chilling plan operations OR B.tech (Dairy/Electrical/Mechanical) with 1 year of relevant industry experience in chilling plant operations
2.	Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	5 years of training experience after Graduation (Science) with 2 years of relevant industry experience in chilling plan operations OR 5 years of training experience after B.tech (Dairy/Electrical/Mechanical) with 1 year of relevant industry experience in chilling plant operations
3.	Tools and Equipment Required for Training	☒ Yes ☐ No (If "Yes", details to be provided in Annexure)
4.	In Case of Revised Qualification, Details of Any Upskilling Required for Trainer	NA

Section 4: Assessment Related

	Assessor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	B.V.sc with 4 years of relevant industry experience In Dairy Science/Animal Science/Veterinary Science or related streams OR B.Tech (Dairy or related streams) with 4 years of relevant industry experience In Dairy Science/Animal Science/Veterinary Science or related streams OR B.Sc (Animal sciences/Dairy science/Dairy technology) with 5 years of relevant industry experience In Dairy Science/Animal Science/Veterinary Science or related streams OR
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		M.V.Sc with 2 years of relevant industry experience In Dairy Science/Animal Science/Veterinary Science or related streams OR Msc (Animal science/Dairy science/Dairy technology) with 2 years of relevant industry experience In Dairy Science/Animal Science/Veterinary Science or related streams OR PhD (Animal science/Dairy science/Dairy technology) with 1 year of relevant industry experience In Dairy Science/Animal Science/Veterinary Science or related streams
	Proctor's Qualification and experience in relevant sector (in years) <i>(as per NCVT guidelines)</i>	Diploma/Graduate (It is mandatory for a proctor to have technical knowledge/IT knowledge Once a proctor has been on-boarded by any AA, they are oriented about skill ecosystem along with do's and don'ts.)
	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) <i>(as per NCVT guidelines)</i>	M.V.Sc with 10 years of relevant industry experience In Dairy Science/Animal Science/Veterinary Science or related streams OR Msc (Animal science/Dairy science/Dairy technology) with 10 years of relevant industry experience In Dairy Science/Animal Science/Veterinary Science or related streams
	Assessment Mode <i>(Specify the assessment mode)</i>	Offline
	Tools and Equipment Required for Assessment	☒ Same as for training ☒ Yes ☐ No <i>(details to be provided in Annexure-if it is different for Assessment)</i>

Section 5: Evidence of the need for the Qualification

Provide Annexure/Supporting documents name.

1.	Latest Skill Gap Study (not older than 2 years) (Yes/No): Yes
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): No
3.	Government /Industry initiatives/ requirement (Yes/No): No
4.	Number of Industry validation provided: 10
5.	Estimated nos. of persons to be trained and employed:
6.	Evidence of Concurrence/Consultation with Line Ministry/State Departments: Awaited, Letter sent on 05 January 2025 to AS MoAFW and reminder sent on 16 Jan 2025

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	Annexure: NCrf/NSQF level justification based on NCrf level/NSQF descriptors <i>(Mandatory)</i>	<i>Annexure-1</i>
2.	Annexure: List of tools and equipment relevant for qualification <i>(Mandatory, except in case of online course)</i>	<i>Annexure-2</i>
3.	Annexure: Detailed Assessment Criteria <i>(Mandatory)</i>	<i>Annexure-5</i>
4.	Annexure: Assessment Strategy <i>(Mandatory)</i>	<i>Annexure-6</i>
5.	Annexure: Blended Learning <i>(Mandatory, in case selected Mode of delivery is "Blended Learning")</i>	NA
6.	Annexure: Multiple Entry-Exit Details <i>(Mandatory, in case qualification has multiple Entry-Exit)</i>	NA
7.	Annexure: Acronym and Glossary <i>(Optional)</i>	
8.	Supporting Document: Model Curriculum <i>(Mandatory – Public view)</i>	<i>Annexure-7</i>
9.	Supporting Document: Career Progression <i>(Mandatory - Public view)</i>	Chilling plant technician (L4), Milk Procurement & Input Supervisor(L5)
10.	Supporting Document: Occupational Map <i>(Mandatory)</i>	<i>Annexure-8</i>
11.	Supporting Document: Assessment SOP <i>(Mandatory)</i>	<i>Annexure-9</i>
12.	Any other document you wish to submit:	

Annexure 1: Evidence of Level

NSQF Domain	NSQF Domain	NSQF Domain	NCrf/NSQF Level
Process	● Operate Chilling System ● Repair and maintenance of Chilling system ● Monitoring of Chilling System	A Chilling Plant Technician performs work in repair, maintenance, service, modification, troubleshooting, inspection and monitoring of the operation of ventilation of chilling system used for chilling milk.	4
Professional knowledge	● Principles and processes in organization standards ● Product Classification ● Food safety and hygiene standards	A Chilling plant technician on the job needs to know and understand the principles and processes involved in organization standards, process standards and procedures followed in the organization, types of products produced by the organization, code of business conduct and job responsibilities/duties and standard operating procedures. Food safety and hygiene standards followed and provision of wages, working hours and	4

		accident compensation as per organisation policy are also the part of professional knowledge the job holder should have.	
Professional skill	- Analyse critical points - Identify control measures - Plan & Manage Work Order - Maintain clean and safe workplace - Utilization of Resources	A Chilling plant technician on the job needs to know and understand how to, analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue, handle issues in case the supervisor is not available (as per the authority matrix defined by the organization), the user/individual on the job needs to know and understand how to, plan and organize the work order and jobs received from the supervisor, organize procured milk and containers required for all products following the instruction provided by the supervisor , plan and prioritize the work based on the instructions received from the supervisor, plan to utilise time and equipment's effectively.	4
Core Skills	- Analyze critical points - Organize procured Milk - Plan & Prioritize work - Manage the deliveries	A Chilling plant technician on the job needs to know and understand how to, analyse critical points in day-to-day tasks through experience and observation and identify control measures to solve the issue, handle issues in case the supervisor is not available (as per the authority matrix defined by the organization), the user/individual on the job needs to know and understand how to, plan and organize the work order and jobs received from the supervisor, organize procured milk and containers required for all products following the instruction provided by the supervisor , plan and prioritize the work based on the instructions received from the supervisor, plan to utilise time and equipment's effectively.	4
Responsibility	- Write information documents - Note down the data - Standard operating procedures for testing milk - Lab equipment's operation	A Chilling plant technician on the job needs to know and understand how to note the information communicated by the supervisor, note down observations (if any) related to the process , write information documents to internal departments/ internal teams , note down the data for online ERP or as per applicability in the organization ,the user/individual on the job needs to know and understand how to, read and interpret the standard operating procedures for testing milk , read and interpret and process flowchart for performing any particular test , read	4

		equipment manuals and process documents to understand the lab equipment’s operation.	
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Annexure 2: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment
Batch Size: 30

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	Evaporator	Nos	1
2	Fans	Nos	1
3	Compressor	Nos	1
4	Condenser	Nos	1
5	Conveyor Belt	Nos	1
6	Video Recording Equipment	Nos	1
7	Sensors	Nos	1
8	Humidity Meter	Nos	1
9	Thermostat	Nos	1

Classroom Aids
The aids required to conduct sessions in the classroom are:

- 1. Whiteboard
- 2. Markers

Annexure 3: Industry Validations Summary

Provide the summary information of all the industry validations in table. This is not required for OEM qualifications.

S.	Organization	Representative	Designation	Contact Address	Contact	E-mail ID	LinkedIn
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No	Name	Name			Phone No		Profile (if available)
1	Centre for Microfinance	Amit Kumar	Head	Jaipur, Rajasthan		amit.kumar@cmfraj.org	
2	QBOID IOTECH Pvt Ltd	Mr. Utkarsh Kapoor	Chief Executive Officer	Gurugram	8130215577	utkarsh@quboid.io	
3	Jordbrukare India Pvt Ltd	Dr. Simrandeep Singh	Coordinator Research			simrandeep.singh@jordbrukare.com	
4	Amar Singh College	Sanjay Kumar Gupta	Dean Department of Agriculture	Bulandshahr		ascollegelkt@gmail.com	
5	Post-Graduation Department of Agriculture	Dr. Randeep Kaur and Dr. Lavleen Kaur	Associate Professor and Assistant Professor	Amritsar	9915305271	lavleenkaur@khalsacollege.edu.in	
6	Aplo College of Veterinary Medicine	Dr. Charan Singh Sharma	Dean Department of Agriculture	Jaipur		apollovetjaipur@gmail.com	
7	Anajori Development Society	Maitur Rahman	President			anajoridevelopmentsociety@gmail.com	
8	GeoFlow AI	Mr.Nitish	Chief Executive Officer			business@genflowai.com	
9	Centre for Agricultural Advancement and Futuristic Environment (CAAFE)	Sumit Srivastava	General Manager	New Delhi	9889990102	info@caafe.in	
10	Vanita Milk Producer Comapny	Sunil Yadav	Milk Operations Incharge	Alwar, rajasthan	7357741409	sky9799661409@gmail.com	

Annexure 4: Training & Employment Details

Training and Employment Projections:

Year	Total Candidates		Women		People with Disability	
	Estimated Training PC.	Estimated Employment Opportunities	Estimated Training PC.	Estimated Employment Opportunities	Estimated Training PC.	Estimated Employment Opportunities
2025-26	500					
2026-27	500					
2027-28	1000					

Data to be provided year-wise for next 3 years

Training, Assessment, Certification, and Placement Data for previous versions of qualifications:

Qualification Version	Year	Total Candidates				Women				People with Disability			
		Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed
V3	24-25	99	0	0	0	0	0	0	0	0	0	0	0

Applicable for revised qualifications only, data to be provided year-wise for past 3 years.

List Schemes in which the previous version of Qualification was implemented:

1. PMKVY 4.0 (SP)

Content availability for previous versions of qualifications:

☒ Participant Handbook ☒ Facilitator Guide ☐ Digital Content ☐ Qualification Handbook ☐ Any Other:

Languages in which Content is available: Hindi and English

Annexure 5: Detailed Assessment Criteria

Detailed assessment criteria for each NOS/Module are as follows:

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
AGR/N4220: Prepare and Maintain Work Area and Chilling Equipment	<i>Prepare and maintain work area for chilling of milk</i>	8	8	-	8
	PC1. clean and maintain the cleanliness of the work area using approved cleaning chemicals and sanitizers to keep it free from dust, waste, flies and pests	-	-	-	-
	PC2. ensure that the work area is safe and hygienic for the chilling of milk	-	-	-	-
	PC3. dispose of waste materials as per defined SOPs and industry requirements	-	-	-	-
	<i>Receive milk at chilling plant</i>	8	9	-	8
	PC4. receive milk at the chilling plant in milk cans	-	-	-	-
	PC5. prepare milk reception schedule for all the routes without loss of quality	-	-	-	-
	PC6. plan the route of the milk van in such a way that the procured milk reaches the chilling plant at the specified time for that route	-	-	-	-
	PC7. use ice packs or portable chilling units for the cooling of milk cans during transit and before the reception at the CC	-	-	-	-
	<i>Prepare and maintain chilling equipment</i>	18	19	-	14
	PC8. check the working and performance of all equipment used in chilling plant facility such as compressor, conveyor belt, condenser, evaporator, fans, sensors, thermostatic expansion valve, humidity meter, etc.	-	-	-	-
	PC9. clean the equipment used with approved cleaning chemicals and sanitizers following SOP	-	-	-	-

	PC10. ensure that the oil traps on the refrigerant discharge side are frequently drained	-	-	-	-
	PC11. Check evaporators and receives if it has solidified and is obstructing the flow of the refrigerant	-	-	-	-
	PC12. ensure that the evaporator coils are kept free of frost by periodically defrosting	-	-	-	-
	PC13. ensure that the refrigerant pipes are free of any clog and there is no ice inside the pipes	-	-	-	-
	PC14. ensure that the compressor stuffing boxes are repacked at regular intervals	-	-	-	-
	PC15. practice minor repairs/faults of all equipment, if required	-	-	-	-
	NOS Total	34	36	-	30
AGR/N4221: Handle Refrigeration Unit for Chilling and Storing Milk	<i>Ensure proper installation of the chilling unit</i>	6	4	-	5
	PC1. inspect the location for setting up the chilling unit, install condensing unit, mount evaporation coil evaporator	-	-	-	-
	PC2. install piping following industry guidelines and applicable codes to ensure proper operation of the unit, check all wiring connections	-	-	-	-
	PC3. calculate the number of temperature sensors required for the unit, identify the location to place the sensors and place them in relevant locations	-	-	-	-
	PC4. charge refrigerant from the supply tank to compressor determining charging level through weight and sight glass indication	-	-	-	-
	PC5. practice pre-start-up checks by verifying sufficient refrigerant is charged, electrical connections are tight, wiring and piping are properly routed and secured	-	-	-	-
	PC6. calibrate various measuring and controlling instruments like HP/LP cutouts, o/l relays, temperature sensors, thermostatic expansion valve	-	-	-	-
	<i>Initiate the chilling system</i>	5	5	-	1

PC7. start the system and check the compressor discharge and suction pressures to ensure they are in the normal operating range	-	-	-	-
PC8. check the voltage and amperage at the compressor terminals	-	-	-	-
PC9. check fans on the evaporator coil and condensing unit (for air-cooled condenser) to ensure they are operational and turning in the correct direction	-	-	-	-
PC10. set up the defrost control/timer clock to the required time and verify the defrost initiation settings, set the temperature control to desired temperature range	-	-	-	-
PC11. check the functioning and performance of sensors and temperature measuring devices	-	-	-	-
<i>Store milk in chilling containers</i>	8	14	-	7
PC12. check all the features of the unit, operation of the cooling equipment and ensure readiness	-	-	-	-
PC13. calibrate temperature and humidity measuring instruments of the facility	-	-	-	-
PC14. receive milk for chilling in cans, check the quality of milk to be refrigerated through physical parameters such as appearance and smell	-	-	-	-
PC15. arrange cans on the conveyor belt by type of milk and supplier	-	-	-	-
PC16. adjust controls to set storage parameters such as temperature and humidity required for the milk to be chilled down to the specified temperature, following the storage parameter chart	-	-	-	-
PC17. ensure that the milk from the cans/containers is emptied into a weighing bowl with a filter where the weight of the milk can be	-	-	-	-

	measured through an electronic weighing machine				
	PC18. check the temperature of milk following SOP	-	-	-	-
	PC19. pump the milk from the holding tank through the line filter	-	-	-	-
	PC20. ensure that the milk is passed through the PHE for cooling	-	-	-	-
	PC21. observe temperature and humidity and adjusts controls to maintain storage parameters during the entire chilling period	-	-	-	-
	PC22. check the temperature of stored milk periodically for conformance to set and achieved temperature	-	-	-	-
	PC23. ensure that milk storage tanks are properly cleaned	-	-	-	-
	PC24. store chilled milk in silos or directly pumped into milk tanker for transportation	-	-	-	-
	PC25. test the milk for Fat/ SNF temperature, any impurities before final transportation to the processing unit	-	-	-	-
	<i>Test milk at chilling plant</i>	4	6	-	3
	PC26. take the sample from the weighing bowl and test the milk for fat, SNF, acidity and adulterants	-	-	-	-
	PC27. collect and send samples from all batches (VLCs) of milk received to the chilling plant laboratory	-	-	-	-
	PC28. mark/number the samples collected	-	-	-	-
	PC29. analyze milk samples for Fat and SNF content, acidity and adulteration	-	-	-	-
	PC30. conduct various milk tests for adulterants and segregate cans accordingly	-	-	-	-
	<i>Inspect, repair/replace chilling systems and components</i>	3	4	-	3
	PC31. conduct periodic inspection of system and components for correct operation	-	-	-	-

	PC32. identify malfunction of components, dismantle, repair and replace faulty components	-	-	-	-
	PC33. reassemble components, test for correct operation, charge system with correct refrigerant, ensure the correct operation of the equipment	-	-	-	-
	PC34. ensure equipment is running efficiently and the required operating conditions are maintained in the chilling containers for operational requirements	-	-	-	-
	<i>Maintain the chilling system and components</i>	8	10	-	4
	PC35. ensure periodic preventive maintenance of the system and components following SOP	-	-	-	-
	PC36. check the evaporators for ice accumulation/proper defrosting, wash evaporator coils to remove dust and foreign materials drawn into the fins	-	-	-	-
	PC37. check evaporator and condenser fan blades for fractures, clean the fan blades, replace worn blades and tighten the fan set screws, lubricate fan motors, replace fan motor if required	-	-	-	-
	PC38. check for the operation of defrost controls, ensure defrost heaters are in the correct position for maximum heat transfer to the evaporator coil, check the voltage at each heater terminal and ensure heater terminals are in good condition	-	-	-	-
	PC39. replace worn condenser motor in compressor unit	-	-	-	-
	PC40. check all electrical components and replace damaged wirings and tighten all electrical connections	-	-	-	-
	PC41. check and ensure the functioning of pressure controls and safety controls	-	-	-	-
	PC42. check the oil level, ensure the working of solenoid valves	-	-	-	-

	PC43. clean condenser periodically	-	-	-	-
	PC44. check the condition of refrigerant line insulation and replace if necessary, check the refrigerant level in the system, ensure no refrigerant leak	-	-	-	-
	PC 45 follow Safety protocols for handling ammonia-based refrigerants	-	-	-	-
	NOS Total	34	43	-	23
AGR/N4222: Complete Documentation and Record-keeping Related to the Chilling Plant	<i>Document and maintain recoqrds of stored milk in the chilling unit</i>	12	12	-	8
	PC1. document and maintain records of quality and quantity, of incoming milk, and quantity & temperature stored milk	-	-	-	-
	PC2. maintain records of all outgoing milk losses from incoming to the outgoing period	-	-	-	-
	PC3. load the details in the ERP system for future reference	-	-	-	-
	PC4. verify the documents and track details incases of concerns	-	-	-	-
	<i>Document and maintain records of storage parameters</i>	12	10	-	8
	PC5. document and maintain records of parameters such as the temperature of the milk, relative humidity of chilling container, before loading, during the storage period and during unloading from the storage facility for each batchof milk stored following SOP	-	-	-	-
	PC6. maintain a record of observations or deviations (if any) related to storage parameters both physical and digital mode	-	-	-	-
	PC7. load the details in the ERP system for future	-	-	-	-

	reference				
	PC8. verify the documents and track details incases of concerns	-	-	-	-
	<i>Document and maintain records of chilling system present in the chilling unit</i>	14	13	-	11
	PC9. document and maintain records of the technical drawings of chilling container/chamber, chilling system and components, electrical lines, etc.	-	-	-	-
	PC10. document and maintain records of the chilling system such as type of chilling unit, type of refrigerant, the quantity of refrigerant used, the cooling system followed	-	-	-	-
	PC11. document and maintain records of operating conditions of chilling container/chamber by recording temperature of milk and air in the chilling room/chamber, compressor pressure, ice formation, etc.	-	-	-	-
	PC12. document and maintain records of preventive maintenance, routine checks, inspections, faults identified, repairs, replacements, refrigerant leak, recharge, of the chilling system and components following SOP	-	-	-	-
	PC13. maintain a record of observations or deviations (if any)	-	-	-	-
	PC14. verify the documents and track details incases of concerns	-	-	-	-
	NOS Total	38	35	-	27
AGR/N4223:	<i>Hygiene and sanitation related functions for storage of</i>				

Ensure Safety, Hygiene and Sanitation for Storage of Milk in a Chilling Plant	<i>milk in a chilling plant</i>	25	18	-	22
	PC1. comply with sanitation and hygiene procedures followed in the organization	-	-	-	-
	PC2. ensure personal hygiene by using gloves, hairnets, masks, earplugs, goggles, shoes, etc.	-	-	-	-
	PC3. ensure hygienic storage of milk by inspecting raw materials, ingredients, finished products, etc.for compliance to physical, chemical and microbiological parameters	-	-	-	-
	PC4. clean, maintain and monitor milk processing equipment periodically, using it only for the specified purpose	-	-	-	-
	PC5. follow housekeeping practices by having a designated area for materials/tools	-	-	-	-
	PC6. provide training on hazard management to understand types of hazards such as physical, chemical and biological hazards	-	-	-	-
	PC7. conduct workplace checklist audits before and after work to ensure safety and hygiene	-	-	-	-
	PC8. document and maintain procured milk, storage container or packaging material, process and finished milk and milk products for the credibility and effectiveness of the food safety control system	-	-	-	-
	<i>Apply safety practices for storage of milk in a chilling plant</i>	14	12	-	9
	PC9. comply with safety procedures followed in the organization	-	-	-	-
	PC10. judge the quality of produce using criteria such as smell, appearance, taste and take immediate measures to prevent spoilage	-	-	-	-
	PC11. store different varieties of produce, chemicals, gases separately to prevent cross-	-	-	-	-

	contamination				
	PC12. label produce, chemicals, gases in both local and English language and store them in designated storage areas	-	-	-	-
	NOS Total	39	30	-	31
DGT/VSQ/N0102: Employability Skills (60 Hours)	<i>Introduction to Employability Skills</i>	1	1	-	-
	PC1. identify employability skills required for jobs in various industries	-	-	-	-
	PC2. identify and explore learning and employability portals	-	-	-	-
	<i>Constitutional values – Citizenship</i>	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	-	-	-	-
	<i>Becoming a Professional in the 21st Century</i>	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	-	-	-	-
	<i>Basic English Skills</i>	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	-	-	-	-
<i>Career Development & Goal Setting</i>	1	2	-	-
PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
<i>Communication Skills</i>	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	-	-	-	-
<i>Diversity & Inclusion</i>	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	-	-	-	-
<i>Financial and Legal Literacy</i>	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	-	-	-	-
<i>Essential Digital Skills</i>	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	-	-	-	-
	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	-	-	-	-
	<i>Customer Service</i>	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	-	-	-	-
	<i>Getting ready for apprenticeship & Jobs</i>	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	-	-

Annexure 6: Assessment Strategy

This section includes the processes involved in identifying, gathering, and interpreting information to evaluate the Candidate on the required competencies of the program.

1. 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 empanelled 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 ground through qualified and ToA certified assessors.

While it is important that an individual has adequate knowledge and skills to perform a specific task, weight age for different aspects for assessment are 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 empanelled assessment partners. Based on the results of assessment; ASCI will certify the learners/candidates

2. Testing Environment

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

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

- Multilingual assessments (ASCI is conducting 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 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 training / within 7 days of completion of training.
- Assessment will be conducted at the training venue
- 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 practical 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 question, etc. which will test the trainee on his theoretical knowledge of the subject.
- The theory, practical and viva assessments will be carried out on same day. In case of more number of candidates, 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 usability of job roles/advantages /importance of adherence to procedures. Viva will be used to gauge trainee's confidence and correct knowledge in handling job situation

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

3. 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, behavioral traits and domain knowledge.

Theoretical Knowledge - Item constructs and types are determined by 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 which 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 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 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, do's and don'ts, subjective questions to check understanding of practical tasks.

Assessor has to go through orientation program organized by Assessment Agency. The training would give an overview to the assessors on the overall framework of QP evaluation. Assessor shall be given a NOS and PC level overview of each QP as applicable. 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 which will maintain standardization of marking scheme.

4. Type of Evidence and Evidence Gathering Protocol:

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

- Geo Tagging to track ongoing assessment
- AA's coordinator emails the list of documents and evidences (photos and videos) to the assessor one day prior to the assessment. List is mentioned below:

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

5. *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 check on assessment quality and ensure assessment is carried out in fair and transparent manner
- Aadhar verification of candidates
- Evening Check (Post Assessment): Calls are made to the ground team to ensure event is over by what time and the documentation is done in proper manner or not.
- TP Calling: To keep check on malpractice activity, independent audit team calls to TP on recorded line to take confirmation if there was any malpractice activity observed in assessment on part of AA/SSC team. If calls are not connected, email is send to TP Spoc for taking their confirmation
- Video and Picture Evidence: Backend team collects video and pictures for assessment on real time basis and highlights any issue like, Students sitting idle/trainer allowed for helping out candidates during assessment.
- Surprise Visit: Time to time SSC/AA Audit team can visit the assessment location and do surprise audit for assessment process carried out by ground team.
- Geo Tagging: On day of assessment, each technical spoc is required to login in our internal app which is Geo tagged. Any deviation with centre address needs to be highlighted to assessment team on real-time basis.

Method for assessment documentation, archiving, and Access:

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

- Maker Checker concept: 1 person prepares results and other audit result which is internally approved by AA at first and then gets vetted at the end of SSC
- All soft copy of documents is received from the on-ground tech team over mail. The same are downloaded by our internal backend team and saved in Repository. The repository consists of scheme wise folders. These scheme wise folders have 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 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 conclusion of project or scheme)

Annexure: Acronym and Glossary

Acronym

Acronym	Description
AA	Assessment Agency
AB	Awarding Body
ISCO	International Standard Classification of Occupations
NCO	National Classification of Occupations
NCrF	National Credit Framework
NOS	National Occupational Standard(s)
NQR	National Qualification Register
NSQF	National Skills Qualifications Framework
OJT	On the Job Training

Glossary

Term	Description
National Occupational Standards (NOS)	NOS define the measurable performance outcomes required from an individual engaged in a particular task. They list down what an individual performing that task should know and also do.
Qualification	A formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards
Qualification File	A Qualification File is a template designed to capture necessary information of a Qualification from the perspective of NSQF compliance. The Qualification File will be normally submitted by the awarding body for the qualification.
Sector	A grouping of professional activities on the basis of their main economic function, product, service or technology.
Long Term Training	Long-term skilling means any vocational training program undertaken for a year and above. https://ncvet.gov.in/sites/default/files/NCVET.pdf