



## **QUALIFICATION FILE**

### **Greenhouse Operator**

☒ **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: 3**

**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	Greenhouse Operator																			
2.	Sector/s	Agriculture																			
3.	Type of Qualification: <input type="checkbox"/> New <input checked="" type="checkbox"/> Revised <input type="checkbox"/> Has Electives/Options <input type="checkbox"/> OEM	NQR Code & version of existing qualification: 2022/AGR/ASCI/06543 & Version 3.0	Qualification Name of existing/previous version: Greenhouse Operator																		
4.	a. OEM Name b. Qualification Name (Wherever applicable)	NA																			
5.	National Qualification Register (NQR) Code &Version (Will be issued after NSQC approval)	QG-03-AG-03415-2024-V2-ASCI	6. NCrf/NSQF Level: 3																		
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 Greenhouse Operator assists in setting up and maintaining a greenhouse. The person is also responsible for planting, maintaining, harvesting and marketing different types of plants, vegetables and flowers in a greenhouse.																			
9.	Eligibility Criteria for Entry for Student/Trainee/Learner/Employee	<b>a. Entry Qualification &amp; Relevant Experience:</b> <table border="1"> <thead> <tr> <th>S. No.</th> <th>Academic/Skill Qualification (with Specialization - if applicable)</th> <th>Required Experience (with Specialization - if applicable)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>10th or equivalent</td> <td></td> </tr> <tr> <td>2</td> <td>8th Class Pass</td> <td>3 years of relevant experience in Agriculture and allied sectors</td> </tr> <tr> <td>3</td> <td>5th grade pass</td> <td>6 years of relevant experience in Agriculture and allied sectors</td> </tr> <tr> <td>4</td> <td>Previous NSQF Level 2.5</td> <td>1.5 years of relevant experience in Agriculture and allied sectors</td> </tr> <tr> <td>5</td> <td>Previous NSQF Level 2.0</td> <td>3 years of relevant experience in Agriculture and allied sectors</td> </tr> </tbody> </table> <b>b. Age: 16</b>		S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1	10th or equivalent		2	8th Class Pass	3 years of relevant experience in Agriculture and allied sectors	3	5th grade pass	6 years of relevant experience in Agriculture and allied sectors	4	Previous NSQF Level 2.5	1.5 years of relevant experience in Agriculture and allied sectors	5	Previous NSQF Level 2.0	3 years of relevant experience in Agriculture and allied sectors
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4	Previous NSQF Level 2.5	1.5 years of relevant experience in Agriculture and allied sectors																			
5	Previous NSQF Level 2.0	3 years of relevant experience in Agriculture and allied sectors																			
10.	Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrf))	Min: 9 Max: 10	11. Common Cost Norm Category (I/II/III) (wherever applicable): I																		

12.	Any Licensing requirements for Undertaking Training on This Qualification (wherever applicable)	NA																							
13.	Training Duration by Modes of Training Delivery (Specify Total Duration as per selected training delivery modes and as per requirement of the qualification)	<input checked="" type="checkbox"/> Offline <input type="checkbox"/> Online <input type="checkbox"/> 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></td> <td></td> <td>270</td> </tr> <tr> <td>Online</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> (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			270	Online					
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																				
Classroom (offline)	150	120			270																				
Online																									
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO-2015/6113.0602																							
15.	Progression path after attaining the qualification (Please show Professional and Academic progression)	Greenhouse Operator (L3), Greenhouse Installer (L4)																							
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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No URLs of similar Qualifications:																							
18.	Is the Job Role Amenable to Persons with Disability	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If "Yes", specify applicable type of Disability: <b>SHI</b>																							
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)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No DGT/VSQ/N0102 (v1.0)																							
21.	Is Qualification Suitable to be Offered in Schools/Colleges	Schools <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No   Colleges <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																							

22.	<b>Name and Contact Details of Submitting / Awarding Body SPOC</b> <i>(In case of CS or MS, provide details of both Lead AB &amp; Supporting ABs)</i>	Name: Mr Srikanth Pampana Email: Standards@asci-india.com Website: www.asci-india.com Contact No.: 0124-4670029	
23.	Final Approval Date by NSQC: 26-11-2024	24. Validity Duration: 3 years post NSQC Approval	25. Next Review Date: 26-11-2027

## 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/NS QF 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	Assist in setting up the greenhouse structure	AGR/N1014 (v2.0)	Core	3	3	40	50			90	30	40	-	30	100	40
2	Carry out greenhouse operations and maintain the greenhouse	AGR/N1008 (v3.0)	Core	3	3	30	60			90	30	40	-	30	100	50
3	Maintain health and safety at the workplace	AGR/N9903 (v4.0)	Non-Core	4	1	20	10			30	40	25		35	100	5
4	Employability Skills (60 Hours)	DGT/VSQ/N 0102 (v1.0)	Non-Core	3	2	60				60	20	30			50	5
Duration (in Hours) / Total Marks					9	150	120			270	120	135		95	350	100

#### Optional NOS/s: Small enterprise

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/Non-Core	NCrF/NS QF 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.	Undertake basic entrepreneurial activities for small enterprise	AGR/N9931 (v1.0)	Core	3	1	20	10			30	30	40		30	100	10
Duration (in Hours) / Total Marks					1	20	10			30						

## Assessment - Minimum Qualifying Percentage

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

**Minimum Pass Percentage – Aggregate at qualification level: 50 %** (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.	<b>Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)</b>	Diploma (Civil/Mechanical/Fitter) with 3 years of relevant industry or training experience in operation of Greenhouse OR I.T.I (Civil/Mechanical/Fitter) with 3 years of relevant industry or training experience in operation of Greenhouse OR 12th Class (Science) with 5 years of industry or training experience in operation of Greenhouse OR Ex-Service-Man including Ex-Paramilitary personnel: Minimum Qualification is 10+2 with an Honorable Discharge/Pension* *SSC would consider a relaxation/waiver of sector specific experience on case-to-case basis. OR Graduate in any stream except Agriculture/ Horticulture/ Botany/ Forestry with 3 years of relevant industry or training experience in operation of Greenhouse** **For the school Program minimum qualification of the Trainer should be Graduate (Agriculture / Horticulture / Botany/ Forestry) with minimum 3 years of Teaching experience (will be considered industry experience) OR B.Sc (Agriculture / Horticulture / Botany/Forestry) with 1 year of relevant industry or training experience in operation of Greenhouse OR B.E./B.Tech (Mechanical/ Civil) with 0.5 year of relevant industry or training experience in operation of Greenhouse OR B.Tech. in Agriculture engineering OR
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		Certificate (Relevant CITS -NCIC course) with 1 year of relevant industry or training experience in operation of Greenhouse
2.	<b>Master Trainer's Qualification and experience in the relevant sector (in years)</b> <i>(as per NCVET guidelines)</i>	<p>5 years of training experience in operation of Greenhouse after Graduation in any stream except Agriculture/ Horticulture/ Botany/ Forestry with 3 years of relevant industry experience in operation of Greenhouse</p> <p>OR</p> <p>5 years of training experience in operation of Greenhouse after B.Sc. (Agriculture / Horticulture / Botany/Forestry) with 1 year of relevant industry experience in operation of Greenhouse</p> <p>OR</p> <p>5 years of training experience in operation of Greenhouse after B.E./B.Tech (Mechanical/ Civil ) with 0.5 year of industry experience in operation of Greenhouse</p> <p>OR</p> <p>5 years of training experience in operation of Greenhouse after B.Tech in Agriculture engineering</p> <p>OR</p> <p>5 years of training experience in operation of Greenhouse after Certificate (Relevant CITS -NCIC course) with 1 year of industry experience in operation of Greenhouse</p>
3.	<b>Tools and Equipment Required for Training</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>(If "Yes", details to be provided in Annexure)</i>
4.	<b>In Case of Revised Qualification, Details of Any Upskilling Required for Trainer</b>	NA

## Section 4: Assessment Related

1.	<b>Assessor's Qualification and experience in relevant sector (in years)</b> <i>(as per NCVET guidelines)</i>	<p>Graduation (Agriculture/Horticulture/ Botany/ Forestry/ Agriculture Engineering/ Farm Engineering and related streams) with 5 years of industry experience in Agriculture/ Forestry/ Agronomy/ Horticulture/ Farm Engineering/ Agriculture</p> <p>OR</p> <p>Post-Graduation (Agriculture/ Farm Engineering/ Agriculture Engineering/ Botany/ Forestry/ Agronomy and related streams) with 2 years of relevant industry experience in Agriculture/ Forestry/ Agronomy/ Horticulture/ Farm Engineering/ Agriculture engineering and related experience</p> <p>OR</p> <p>PhD (Agriculture/ Botany/ Forestry/ Agronomy/ Agriculture engineering/ Farm Engineering and related streams) with 1 year of relevant industry experience in Agriculture/ Forestry/ Agronomy/ Horticulture/ Farm Engineering/ Agriculture engineering and related experience.</p>
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2.	<b>Proctor's Qualification and experience in relevant sector (in years)</b> <i>(as per NCVET 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.)
3.	<b>Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years)</b> <i>(as per NCVET guidelines)</i>	Post-Graduation (Agriculture/ Farm Engineering/ Agriculture Engineering/ Botany/ Forestry/ Agronomy and related streams) with 10 years of industry experience in Agriculture/ Forestry/ Agronomy/ Horticulture/ Farm Engineering/ Agriculture engineering and related experience
4.	<b>Assessment Mode</b> <i>(Specify the assessment mode)</i>	<b>Offline</b>
5.	<b>Tools and Equipment Required for Assessment</b>	<input checked="" type="checkbox"/> Same as for training <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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.	<b>Latest Skill Gap Study (not older than 2 years) (Yes/No):</b> Yes
2.	<b>Latest Market Research Reports or any other source (not older than 2 years) (Yes/No):</b> No
3.	<b>Government /Industry initiatives/ requirement (Yes/No):</b> Yes, Government Initiative, part of PMKVY 4.0
4.	<b>Number of Industry validation provided:</b>
5.	<b>Estimated nos. of persons to be trained and employed:</b> 2000
6.	<b>Evidence of Concurrence/Consultation with Line Ministry/State Departments:</b> Yes

## Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	<b>Annexure:</b> NCrf/NSQF level justification based on NCrf level/NSQF descriptors <i>(Mandatory)</i>	Annexure-1
2.	<b>Annexure:</b> List of tools and equipment relevant for qualification <i>(Mandatory, except in case of online course)</i>	Annexure-2
3.	<b>Annexure:</b> Detailed Assessment Criteria <i>(Mandatory)</i>	Annexure-5
4.	<b>Annexure:</b> Assessment Strategy <i>(Mandatory)</i>	Annexure-6

5.	<b>Annexure:</b> Blended Learning ( <i>Mandatory, in case selected Mode of delivery is "Blended Learning"</i> )	NA
6.	<b>Annexure:</b> Multiple Entry-Exit Details ( <i>Mandatory, in case qualification has multiple Entry-Exit</i> )	NA
7.	<b>Annexure:</b> Acronym and Glossary ( <i>Optional</i> )	
8.	<b>Supporting Document:</b> Model Curriculum ( <i>Mandatory – Public view</i> )	Annexure-7
9.	<b>Supporting Document:</b> Career Progression ( <i>Mandatory - Public view</i> )	Greenhouse Installer (L4)
10.	<b>Supporting Document:</b> Occupational Map ( <i>Mandatory</i> )	Annexure-8
11.	<b>Supporting Document:</b> Assessment SOP ( <i>Mandatory</i> )	Annexure-9
12.	<b>Any other document you wish to submit:</b>	

### Annexure-1: Evidence of Level

NCrF/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrF/NSQF level descriptor	NCrF/NSQF Level
Professional Theoretical Knowledge/Process	<ul style="list-style-type: none"> <li>Assist in setting up different types of greenhouse</li> </ul>	A Greenhouse Operator assists in setting up and maintaining a greenhouse. The person is also responsible for planting, maintaining, harvesting and marketing different types of plants, vegetables and flowers in a greenhouse.	3
Professional and Technical Skills/ Expertise/ Professional Knowledge	<ul style="list-style-type: none"> <li>Optimise resource utilisation</li> <li>Perform waste management</li> <li>Administer appropriate emergency procedures</li> <li>Maintain clean and safe workplace</li> </ul>	The job holder is expected to have knowledge of planting, maintaining, harvesting and marketing different types of plants, vegetables and flowers in a greenhouse, optimise the usage of water, electricity and relevant materials, follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions, use emergency equipment in accordance with manufacturer's specifications, report details of first aid administered in accordance with workplace procedures, carry out basic safety checks before operation of all tools, implements,	3

		and machinery, follow the instructions mentioned on the labels of chemicals/pesticides/fumigants, assess risks prior to performing manual handling jobs, work in a manner which minimizes environmental damage, follow government / workplace advisories in case of outbreak, recognize risks to bystanders and take required action to reduce the risks, how to dispose waste safely and correctly in the designated area.	
<b>Employment Readiness &amp; Entrepreneurship Skills &amp; Mind-set/Professional Skill</b>	<ul style="list-style-type: none"> <li>• Maintain the greenhouse</li> <li>• Carry out post-harvest processing and marketing of flowers and vegetables</li> <li>• Maintain personal hygiene</li> <li>• Practice inclusion at work</li> </ul>	The job holder is expected to carry out regular repair and maintenance of the greenhouse structure, carry out sorting and grading of the flowers and vegetables, market the flowers and vegetables to the customers, maintain the record of sales and payments, follow the recommended inclusive practices for Persons with Disabilities (PwD), follow the workplace sanitization norms, wash hands, legs and face with soap/alcohol based sanitizer at reasonable intervals, ensure the face is covered with mask or three layers of cloth-piece.	3
<b>Broad Learning Outcomes/Core Skill</b>	<ul style="list-style-type: none"> <li>• Plant and maintain seeds, vegetables and plants</li> <li>• Harvest, acclimatise and transplant seedlings and plants</li> <li>• Harvest the flowers and vegetables</li> </ul>	The job holder is expected to ensure the availability of required planting material, prepare the raised, flat or sunken bed in the greenhouse, water the planted seeds, vegetables, flowers and plants, check the seedlings, vegetables, flowers and plants to identify the signs of pests and disease, apply herbicides and weedicides and carry out manual weeding, carry out regular repair and maintenance of the irrigation or fertigation system, maintain the record of herbicides, weedicides fertilizers, pesticides and insecticides used, acclimatise the seedlings and plants under the recommended temperature, harvest the seedlings and plants, transplant the acclimatised seedlings and plants, harvest the flowers and vegetables using the appropriate tools and collect them, store the harvested flowers and	3

		vegetables at the recommended temperature, humidity and hygienic conditions.	
<b>Responsibility</b>	<ul style="list-style-type: none"> <li>• Setting up Greenhouse</li> <li>• Maintenance and activities related to Greenhouse</li> </ul>	A Greenhouse Operator is responsible for assisting in setting up and maintaining a greenhouse. The person is also responsible for planting, maintaining, harvesting and marketing different types of plants, vegetables and flowers in a greenhouse.	3

### 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	pumps	Nos	1
2	Water Tanks	Nos	1
3	Germination equipment including heating mats	Nos	1
4	fertilizer injectors cum propagation misters	Nos	1
5	Plant Markers/Tags	Nos	10
6	Hoe	Nos	1
7	khurpi	Nos	6
8	spade	Nos	1
9	Herbicides- Any	Litre	1
10	Fungicides- Any	Litre	1
11	Seeds/Planting Material	Nos	5
12	hoses & nozzles	Nos	2
13	coco peat	Kg	1
14	compost	Kg	1
15	vermicompost	Kg	1
16	Face Masks	Nos	30

17	Gumboots	Nos	5
18	Rubber gloves	Nos	30
19	Video Recording Equipment	Nos	1
20	fertilizers	Kg	1
21	Watering equipment - sprinkler systems or Drip System	Nos	1
22	Containers for plants	Nos	5
23	Plastic Seed tray	Nos	1
24	ventilating fans and air circulation tubes	Nos	1
25	Pesticides Sprayer	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. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile (if available)
1.	Mahindra and Mahindra Ltd Farm division	Soumitra Choudhury	Head- Training	Nagpur	9766699020	Choudhury.soumitra@mahindra.com	
2.	Farm Implements India Pvt Ltd	D S Balachandra Babu	Managing Director	Chennai	04428261676	Balachandra.babu@gmail.com	
3	Varsha Agri Business Centre for Development Ltd	Mallamma	Business Development	Chitradurga	9448396283	Info.abc4d.in	
4	K.K. Wagh College of Agricultural Engineering & Technology	Prof. Anil Nivruthi Shinde	Assistant Professor	Nashik	8975388803	anilg.shinde5@gmail.com	
5	Directorate of Agriculture Engineering, Bhopal	Dr Rajeev Chaudhary	Director Agricultural Engineering	Bhopal	07552583313	dagebho@mp.gov.in	

Annexure 4: Training & Employment Details

Training and Employment Projections:

Year	Total Candidates		Women		People with Disability	
	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities
2024-25	500					
2025-26	500					
2026-27	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
3.0	2021-2024	1218											

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

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/N1014: Assist in setting up the greenhouse structure	<i>Assist in setting up different types of greenhouse</i>	20	25		20
	PC1. assist in the selection of an appropriate type of greenhouse such as the lean-to, even or uneven span, ridge and furrow, saw tooth based on the relevant criteria such as the climate, topography, sunlight exposure, availability of quality water, market accessibility, etc.	-	-	-	-
	PC2. assist the greenhouse installer in taking measurements and preparing a layout of the greenhouse	-	-	-	-
	PC3. assist in organising the necessary materials such as wood, galvanized steel or iron, aluminium, glazing material, tools and equipment required for setting up the selected type of greenhouse	-	-	-	-
	PC4. level the selected land as per the installer's instructions before the installation of the greenhouse	-	-	-	-
	PC5. assist in preparing the greenhouse structure and erecting it as per the prepared layout, ensuring good air- circulation, adequate sunlight exposure along with temperature and humidity control equipment	-	-	-	-
	PC6. Assist in installation of solar panels over the greenhouse to power fans for air- circulation and pumps for irrigation and fertigation in an eco-friendly manner as per plan	-	-	-	-
	PC7. assist in installing the appropriate glazing material as per the plan such as Polycarbonate plastic, glass, Fibre- reinforced plastic (FRP), corrugated sheet, plastic film, Ultraviolet stabilized low-density polyethylene, Silpaulin, etc.	-	-	-	-
	PC8. assist in installing automated or non- automated irrigation or fertigation system as planned	-	-	-	-
	PC9. arrange for safe drainage of excess water from the greenhouse and its protection from external threats such as stray animals, whiteflies, rodents, etc.	-	-	-	-
	<i>Optimise resource utilisation</i>	10	15		10
	PC10. optimise the usage of water and other resources in various tasks and processes	-	-	-	-
	PC11. connect the electrical tools and equipment safely and turn them off when not in use	-	-	-	-

	PC12. plug water leakages to prevent its wastage	-	-	-	-
	<b>Total Marks</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>
<b>AGR/N1008: Carry out greenhouse operations and maintain the greenhouse</b>	<i>Plant and maintain seeds, vegetables and plants</i>	<i>10</i>	<i>12</i>		<i>8</i>
	PC1. ensure the availability of required planting material	-	-	-	-
	PC2. prepare the raised, flat or sunken bed in the greenhouse as per the requirement	-	-	-	-
	PC3. plant seeds, vegetables and different types of plants in the greenhouse	-	-	-	-
	PC4. water the planted seeds, vegetables, flowers and plants with the recommended quantity	-	-	-	-
	PC5. apply relevant fertilizers in the recommended quantity to promote the healthy growth of seedlings, vegetables and plants	-	-	-	-
	PC6. check the seedlings, vegetables, flowers and plants to identify the signs of pests and disease	-	-	-	-
	PC7. apply the recommended pesticides and insecticides to control pest and disease infestation and also install sticky fly and insect traps as mechanical means	-	-	-	-
	PC8. remove the dead and damaged seedlings, vegetables, flowers and plants	-	-	-	-
	PC9. apply herbicides and weedicides and carry out manual weeding to prevent unwanted growth in the greenhouse	-	-	-	-
	PC10. maintain the recommended temperature, humidity and sunlight exposure in the greenhouse	-	-	-	-
	PC11. carry out regular repair and maintenance of the irrigation or fertigation system	-	-	-	-
	PC12. maintain the manual and/ or electronic record of herbicides, weedicides fertilizers, pesticides and insecticides used in the greenhouse	-	-	-	-
	<i>Harvest, acclimatize and transplant seedlings and plants</i>	<i>6</i>	<i>8</i>		<i>4</i>
	PC13. check the readiness of the seedlings and plants for being transplanted	-	-	-	-
	PC14. harvest the seedlings and plants ensuring no damage to them	-	-	-	-
	PC15. acclimatise the seedlings and plants under the recommended temperature, protecting them from harsh conditions	-	-	-	-
	PC16. transplant the acclimatised seedlings and plants in the garden	-	-	-	-
	<i>Harvest the flowers and vegetables</i>	<i>4</i>	<i>6</i>		<i>4</i>



	PC17. check the maturity of flowers and vegetables grown in the greenhouse	-	-	-	-
	PC18. harvest the flowers and vegetables using the appropriate tools and collect them in appropriate baskets and/ or containers	-	-	-	-
	PC19. store the harvested flowers and vegetables at the recommended temperature, humidity and hygienic conditions	-	-	-	-
	<i>Carry out post-harvest processing and marketing of flowers and vegetable</i>	4	6		6
	PC20. carry out sorting and grading of the flowers and vegetables	-	-	-	-
	PC21. clean the vegetables using clean water and recommended cleaning agents	-	-	-	-
	PC22. prepare the hydration solution and apply it to the flowers to maintain their freshness	-	-	-	-
	PC23. market the flowers and vegetables to the customers visiting the greenhouse or to the regular market buyers	-	-	-	-
	PC24. process the payments using the appropriate e-payment methods	-	-	-	-
	PC25. maintain the record of sales and payments manually and/or electronically using the physical registers and/ or the relevant computer application	-	-	-	-
	<i>Maintain the greenhouse</i>	2	4		4
	PC26. maintain cleanliness in the greenhouse through regular sweeping and removal of trash	-	-	-	-
	PC27. check the greenhouse structure regularly to identify the repair and maintenance needs	-	-	-	-
	PC28. carry out regular repair and maintenance of the greenhouse structure and co- ordinate with an expert for complex repairs	-	-	-	-
	<i>Perform waste management</i>	4	2		4
	PC29. segregate waste into appropriate categories	-	-	-	-
	PC30. dispose or recycle different types of wastes following the recommended practices	-	-	-	-
	<b>Total Marks</b>	<b>30</b>	<b>40</b>		<b>30</b>
<b>AGR/N9903: Maintain health and safety at the workplace</b>	<i>Maintain personal hygiene</i>	10	5		10
	PC1. wash hands, legs and face with soap/alcohol-based sanitizer at reasonable intervals	-	-	-	-
	PC2. wash the worn clothes with soap and sun-dry before use next time	-	-	-	-
	PC3. ensure the face is covered with mask or three layers of cloth-piece	-	-	-	-
	PC4. follow the workplace sanitisation norms including distancing from sick people	-	-	-	-

	<i>Maintain clean and safe workplace</i>	15	15		15
	PC5. carry out basic safety checks before operation of all tools, implements, and machinery and report identified hazards to the supervisor	-	-	-	-
	PC6. wear appropriate Personal Protective Equipment (PPE) while performing work in accordance with the workplace policy	-	-	-	-
	PC7. follow the instructions mentioned on the labels of chemicals/pesticides/fumigants etc. to avoid hazards	-	-	-	-
	PC8. assess risks prior to performing manual handling jobs, and work according to currently recommended safe practices	-	-	-	-
	PC9. sanitize equipment, tools and machinery before and after use	-	-	-	-
	PC10. use equipment and materials safely and correctly and return the same to designated storage after use	-	-	-	-
	PC11. dispose waste safely and correctly in the designated area	-	-	-	-
	PC12. recognize risks to bystanders and take required action to reduce the risks	-	-	-	-
	PC13. work in a manner which minimizes environmental damage, ensuring all procedures and instructions for controlling risks are followed	-	-	-	-
	PC14. report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action to reduce further danger	-	-	-	-
	PC15. follow government / workplace advisories in case of outbreak of any disease/disaster	-	-	-	-
	<i>Administer appropriate emergency procedures</i>	15	5		10
	PC16. follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions to the location of emergency, as per the workplace requirements	-	-	-	-
	PC17. use emergency equipment in accordance with manufacturer's specifications and workplace requirements	-	-	-	-
	PC18. report provide treatment appropriate to the patient's injuries in accordance with recognized first aid techniques	-	-	-	-
	PC19. recover (if practical), clean, inspect/test, refurbish, replace and store the first aid equipment as appropriate	-	-	-	-
	PC20. report details of first aid administered in accordance with workplace procedures	-	-	-	-
	Total Marks	40	25	-	35

DGT/VSQ/N0101: Employability Skills (30 Hours)	<i>Introduction to Employability Skills</i>	1	1		
	PC1. understand the significance of employability skills in meeting the job requirements				
	<i>Constitutional values – Citizenship</i>				
	PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices				
	<i>Becoming a Professional in the 21st Century</i>	1	3		
	PC3. explain 21st Century Skills such as Self- Awareness, Behavior Skills, Positive attitude, self- motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc				
	<i>Basic English Skills</i>	2	3		
	PC4. speak with others using some basic English phrases or sentences				
	<i>Communication Skills</i>	1	1		
	PC5. follow good manners while communicating with others				
	PC6. work with others in a team				
	<i>Diversity &amp; Inclusion</i>	1	1		
	PC7. communicate and behave appropriately with all genders and PwD				
	PC8. report any issues related to sexual harassment				
	<i>Financial and Legal Literacy</i>	3	4		
	PC9. use various financial products and services safely and securely				
	PC10. calculate income, expenses, savings etc.				
	PC11. approach the concerned authorities for any exploitation as per legal rights and laws				
	<i>Essential Digital Skills</i>	4	6		
	PC12. operate digital devices and use its features and applications securely and safely				
	PC13. use internet and social media platforms securely and safely				
	<i>Entrepreneurship</i>	3	5		
	PC14. identify and assess opportunities for potential business				
	PC15. identify sources for arranging money and associated financial and legal challenges				
	<i>Customer Service</i>	2	2		
	PC16. identify different types of customers				

	PC17. identify customer needs and address them appropriately				
	PC18. follow appropriate hygiene and grooming standards				
	<i>Getting ready for apprenticeship &amp; Jobs</i>	1	3		
	PC19. create a basic biodata				
	PC20. search for suitable jobs and apply				
	PC21. identify and register apprenticeship opportunities as per requirement				
	<b>NOS Total</b>	20	30		
<b>AGR/N9931: Undertake basic entrepreneurial activities for small enterprise</b>	<i>Plan the agricultural enterprise/ business</i>	<b>10</b>	<b>14</b>	-	<b>10</b>
	PC1. understand the demand and supply of the relevant agricultural produce in the market				
	PC2. identify the target customers and assess their needs and expectations with respect to the quality and price of the produce				
	PC3. identify various types of agricultural entrepreneurship/ business opportunities				
	PC4. plan agricultural production with the use of relevant and efficient technologies for availing funds				
	PC5. identify appropriate and authentic advisory services/Government authority for skill upgradation to successfully plan and implement business activities				
	PC6. prepare a basic business plan for small agricultural enterprise				
	PC7. identify appropriate sources of funding for the agricultural entrepreneurship/ business				
	PC8. coordinate with the relevant government authorities to subscribe to the relevant government schemes and programs to benefit from them				
	PC9. ensure compliance with the government structural reforms and framework along with the applicable rules and regulations while setting up the agricultural enterprise/ business				
	<i>Manage the agricultural production process</i>	<b>8</b>	<b>10</b>	-	<b>8</b>
	PC10. select and arrange the necessary resources for the business operations				
	PC11. ensure the use of relevant and efficient production technologies as per planning and availability of funds				
	PC12. follow the recommended practices for efficient input resource management				

	PC13. optimise the production processes and output through the amalgamation of existing practices with smart technologies				
	PC14. follow the recommended sustainability practices during agricultural production to prevent adverse impacts on the environment and produce viz. deforestation, loss of biodiversity, soil degradation, etc.				
	<i>Manage the post-production and marketing processes</i>	12	16	-	12
	PC15. ensure the availability of proper storage infrastructures and facilities post-production of the produce as per the industry quality standards				
	PC16. collect information related to the wholesale and retail price of produce				
	PC17. calculate the costs incurred and determine the price of the produce for profitability				
	PC18. ensure that the cost of production, transportation, and marketing are considered while calculating the cost and setting the price for the produce				
	PC19. collect information related to various subsidies/funds offered by the government, authorised state units and other financial institutions involved with the promotion of the produce				
	PC20. select appropriate marketing channels for the produce, considering the relevant requirements and constraints				
	PC21. identify various risks to production and post-production processes and manage them appropriately				
	PC22. undertake outreach programs to promote agricultural products and services, and expand agri-business				
	PC23. use the relevant digital services such as e-commerce, e-payments, electronic record-keeping, etc.				
	PC24. use efficient post-production logistics means to improve the supply quantity, reduce the cost to the consumer, and increase demand consequently				
	PC25. ensure all the relevant information such as quality and quantity of produce, date of manufacture, batch number, and sale is recorded electronically and/ or manually				
	PC26. coordinate with the various stakeholders for efficient and sustainable agri-business growth and development				

Total	30	40	-	30
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### 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
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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 7: 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
<b>National Occupational Standards (NOS)</b>	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.
<b>Qualification</b>	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
<b>Qualification File</b>	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.
<b>Sector</b>	A grouping of professional activities on the basis of their main economic function, product, service or technology.
<b>Long Term Training</b>	Long-term skilling means any vocational training program undertaken for a year and above. <a href="https://ncvet.gov.in/sites/default/files/NCVET.pdf">https://ncvet.gov.in/sites/default/files/NCVET.pdf</a>