



## QUALIFICATION FILE

### Micro-Irrigation 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.	<b>Qualification Name</b>	Micro-Irrigation Technician																
2.	<b>Sector/s</b>	Agriculture																
3.	<b>Type of Qualification:</b> <input type="checkbox"/> New <input checked="" type="checkbox"/> Revised <input type="checkbox"/> Has Electives/Options <input type="checkbox"/> OEM	<b>NQR Code &amp; version of existing qualification:</b> 2022/AGR/ASCI/06537 & Version 1.0	<b>Qualification Name of existing/previous version:</b> Micro-Irrigation Technician															
4.	<b>a. OEM Name</b> <b>b. Qualification Name</b> (Wherever applicable)	NA																
5.	<b>National Qualification Register (NQR) Code &amp;Version</b> (Will be issued after NSQC approval)	QG-04-AG-03566-2025-V2-ASCI & Version 2.0	<b>6. NCrf/NSQF Level: 4</b>															
7.	<b>Award (Certificate/Diploma/Advance Diploma/ Any Other</b> (Wherever applicable specify multiple entry/exits also & provide details in annexure)	Certificate																
8.	<b>Brief Description of the Qualification</b>	A Micro-Irrigation Technician is responsible for planning, installing, testing and commissioning micro-irrigation systems in the field to ensure uninterrupted supply of water for farm operations.																
9.	<b>Eligibility Criteria for Entry for Student/Trainee/Learner/Employee</b>	<b>a. Entry Qualification &amp; Relevant Experience:</b> <table border="1" style="margin-left: 20px;"> <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>12<sup>th</sup> or Equivalent</td> <td></td> </tr> <tr> <td>2</td> <td>10th Class</td> <td>3-years of relevant experience in Agriculture and allied sectors</td> </tr> <tr> <td>3</td> <td>Previous NSQF Level 3.5</td> <td>1.5 Years of relevant experience in Agriculture and allied sectors</td> </tr> <tr> <td>4</td> <td>Previous NSQF Level 3</td> <td>3 Years of relevant experience in Agriculture and allied sectors</td> </tr> </tbody> </table> <b>b. Age: NA</b>		S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1	12 <sup>th</sup> or Equivalent		2	10th Class	3-years of relevant experience in Agriculture and allied sectors	3	Previous NSQF Level 3.5	1.5 Years of relevant experience in Agriculture and allied sectors	4	Previous NSQF Level 3	3 Years of relevant experience in Agriculture and allied sectors
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)																
1	12 <sup>th</sup> or Equivalent																	
2	10th Class	3-years of relevant experience in Agriculture and allied sectors																
3	Previous NSQF Level 3.5	1.5 Years of relevant experience in Agriculture and allied sectors																
4	Previous NSQF Level 3	3 Years of relevant experience in Agriculture and allied sectors																
10.	<b>Credits Assigned to this Qualification, Subject to Assessment</b> (as per National Credit Framework (NCrf))	13	<b>11. Common Cost Norm Category (I/II/III)</b> (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>165</td> <td>195</td> <td>30</td> <td></td> <td>390</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)	165	195	30		390	Online					
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																		
Classroom (offline)	165	195	30		390																		
Online																							
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO-2015/ 3142.0101																					
15.	Progression path after attaining the qualification (Please show Professional and Academic progression)	Micro-irrigation Technician (L4), Precision Farming Technician (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	<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: SHI																					
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.	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: 18-02-2025	24. Validity Duration: 3 years post NSQC Approval		25. Next Review Date: 18-02-2028																			

## 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/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	Prepare to set up the micro-irrigation system	AGR/N1004 (v4.0)	Core	4	3	30	60			90	30	40		30	100	25
2	Install the micro-irrigation system	AGR/N1005 (v3.0)	Core	4	4	35	85			120	30	40		30	100	30
3	Perform repair and maintenance of the micro-irrigation system	AGR/N1006 (v3.0)	Core	4	2	25	35			60	30	40		30	100	25
4	Maintain health and safety at the workplace	AGR/N9903 (v4.0)	Non-Core	4	1	15	15			30	40	25		35	100	10
5	Employability Skills (60 Hours)	DGT/VSQ/N 0102 (v1.0)	Non-Core	4	2	60				60	20	30			50	10
6	OJT				1			30		30						
<b>Duration (in Hours) / Total Marks</b>						13	165	195	30	390	150	175		125	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.	<b>Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)</b>	<p>10th Class with 7 years of relevant industry experience in Agriculture farm Machinery*          *Micro Irrigation technician with 7 years' experience with Government/civic authority/registered nursery/corporates          OR          12th Class with 5 years of relevant industry experience in Agriculture farm Machinery**          **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          Diploma (Mechanical/Civil/Plumbing/Fitter) with 3 years of relevant industry experience in Agriculture farm Machinery          OR          I.T.I (Mechanical/Civil/Plumbing/Fitter) with 3 years of relevant industry experience in Agriculture farm Machinery          OR          Graduate in any stream with 10+2 in Science with 3 years of relevant training experience in Agriculture farm Machinery***          ***For the school Program minimum qualification of Trainer should be Graduate with 10+2 in science. Their Teaching experience will be considered industry experience          OR          B.Sc. (Agriculture / Horticulture / Botany/Forestry) with 1 year of relevant industry experience in Agriculture farm Machinery          OR          Certificate (NCIC-Fitter/Plumber certificate, relevant CITS -NCIC course) with 1 year of relevant industry experience in Agriculture farm Machinery          OR          B.Tech. (Mechanical/ Civil) with 0.5 year of relevant industry experience in Agriculture farm Machinery          OR          B.Tech (Agriculture engineering)</p>
2.	<b>Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)</b>	<p>5 years of training experience in Agriculture farm Machinery after Graduation in any stream with 10+2 in Science with 3 years of relevant industry experience in Agriculture farm Machinery          OR          5 years of training experience in Agriculture farm Machinery after B.Sc (Agriculture / Horticulture / Botany/Forestry ) with 1 year of relevant industry experience in Agriculture farm Machinery</p>

		OR 5 years of training experience in Agriculture farm Machinery after B.Tech (Mechanical/ Civil ) with 0.5 year of relevant industry experience in Agriculture farm Machinery OR 5 years of training experience in Agriculture farm Machinery after B.Tech (Agriculture engineering)
3.	<b>Tools and Equipment Required for Training</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If “Yes”, details to be provided in Annexure)
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) (as per NCVET guidelines)</b>	<b>Graduation</b> (Agriculture/ Agriculture Engineering/Mechanical Engineering/Farm Machinery and related streams) with 5 years’ of relevant industry experience in Agriculture/Farm Machinery/irrigation Engineering and related experience OR <b>Post-graduation</b> (Agriculture/ Agriculture Engineering/Mechanical Engineering/Farm Machinery and related streams) with 2 years’ of relevant industry experience in Agriculture/Farm Machinery/irrigation Engineering and related experience OR <b>PhD</b> (Agriculture/ Agriculture Engineering/Mechanical Engineering/Farm Machinery and related streams) with 1 year relevant industry experience in Agriculture/Farm Machinery/irrigation Engineering and related experience
2.	<b>Proctor’s Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b>	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) (as per NCVET guidelines)</b>	<b>Post-graduation</b> (Agriculture/ Agriculture Engineering/Mechanical Engineering/Farm Machinery and related streams) with 10 years’ of relevant industry experience in Agriculture/Farm Machinery/irrigation Engineering and related experience
4.	<b>Assessment Mode (Specify the assessment mode)</b>	<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 (details to be provided in Annexure-if it is different for Assessment)

## 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> Government Initiative, part of PMKVY 4.0
4.	<b>Number of Industry validation provided:</b> 5
5.	<b>Estimated nos. of persons to be trained and employed:</b> 20,000
6.	<b>Evidence of Concurrence/Consultation with Line Ministry/State Departments:</b> Awaited from Department of Agriculture & Farmers Welfare Ministry of Agriculture & Farmers Welfare

## 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>	Micro-irrigation technician (L4), Precision Farming Technician (L5)
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
<b>Professional Theoretical Knowledge/Process</b>	<ul style="list-style-type: none"> <li>• Calculate the water requirement for micro irrigation</li> <li>• Plan the micro-irrigation system</li> <li>• Install the micro-irrigation system</li> <li>• Carry out post-installation activities</li> </ul>	A Micro-Irrigation Technician is responsible for planning, installing, testing and maintaining micro-irrigation systems in the field to ensure uninterrupted supply of water for farm operations.	4
<b>Professional and Technical Skills/ Expertise/ Professional Knowledge</b>	<ul style="list-style-type: none"> <li>• Mentor apprentice</li> <li>• Promote inclusion at the workplace</li> </ul>	The user/individual on the job needs to know and understand the code of business conduct, job responsibilities and duties, standard training tools and procedures and organization methods for pre demonstration check-ups.	4
<b>Employment Readiness &amp; Entrepreneurship Skills &amp; Mind-set/Professional Skill</b>	<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 should have professional skills including: Decision making, Planning and Organising, Customer centricity, Problem solving, Analytical Thinking, Critical thinking.	4
<b>Broad Learning Outcomes/Core Skill</b>	<ul style="list-style-type: none"> <li>• Arrange the necessary resources</li> <li>• Perform repair and maintenance</li> <li>• Effective communication at the workplace</li> <li>• Maintain personal hygiene</li> </ul>	The job holder must have Core Skills which will include: Writing Skills, Reading Skills, Oral and Communication (Listening and Speaking).	4
<b>Responsibility</b>	<ul style="list-style-type: none"> <li>• The job holder is required to hold responsibility for his/her own work</li> </ul>	A Micro-Irrigation Technician is responsible for installation, testing and maintenance of a micro-irrigation system in the field to ensure uninterrupted supply of water for farm operations.	4

	<p>and learning and full responsibility for other’s work and learning.</p> <ul style="list-style-type: none"> <li>• ensure availability of all tools and equipment required for the demonstrations, demonstrate the operation</li> <li>• demonstrate the operation and explain key advantages of post-harvest equipment</li> <li>• demonstrate the process of carrying out minor repairs and periodical maintenance of agricultural machinery and equipment</li> <li>• provide information about safety procedures, protective devices required for operation, listen to workers, team members and farmers to know and understand their work-related problems,</li> </ul>		
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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	Drip Line	Ft	10
2	Disk Filter	Nos	1
3	Sand Filter	Nos	1
4	Pipe Wrinch	Nos	1
5	Punching Machine	Nos	1

6	Connector	Nos	1
7	Grommet	Nos	1
8	Pressure Gauge	Nos	1
9	Fertilizer Tank/ Ventury	Nos	1
10	Flush Valve	Nos	1
11	Gumboots	Nos	5
12	Hand Gloves	Nos	30
13	Spanner	Set	1
14	End Cap	Nos	1
15	Drawing Sheet	Nos	1
16	Kudal	Nos	1
17	Khurpi	Nos	5
18	Fawda	Nos	1
19	Solvent Cement	Nos	1
20	Micro Tube (Complete Assembly )	Nos	1
21	Sprinkler With Stand	Nos	1
22	Helmet	Nos	3
23	Cutter	Nos	1
24	Driper	Nos	1
25	Video Recording Equipment	Nos	1
26	PVC Pipe	Ft	10
27	Ball Valve	Nos	1
28	Service Saddle	Nos	1
29	Tee-(T)	Nos	1
30	Elbow (L)	Nos	1
31	Screen Filter	Nos	1
32	HDPE Pipe	Ft	10

#### 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	4428261676	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	7552583313	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
2025-26	5000	100				
2026-27	7500	100				
2027-28	7500	100				

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	2022-23	2868	172	140	0	1746	53	33	0	0	0	0	0

3.0	2023-24	9393	6938	6629	259	5819	4285	4079	61	0	0	0	0
3.0	2024-25	9468	6481	6056	142	5120	3260	3107	51	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
2. Directorate of Indian Army Veterans (DIAV),
3. SANKALP - DIAV
4. PMKUVA
5. MMKVY-Cat.-1: RAJKViK - Feebased

**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
<b>AGR/N1004: Prepare to set up the micro-irrigation system</b>	<i>Plan the micro-irrigation System</i>	20	25		15
	PC1. identify the characteristics of the water available for irrigation such as potable and non-potable				
	PC2. evaluate the land gradient and elevation differences to select a suitable micro-irrigation system				
	PC3. measure the area to be irrigated along with the water needs of the proposed crop at different stages of its growth				
	PC4. calculate the water requirements for micro irrigation in the selected area				
	PC5. select a suitable type of micro-irrigation system such as sprinkler irrigation, drip irrigation, spray irrigation, subsurface irrigation				
	PC6. plan optimum spacing between the drip lines, drip line emitters and the crop plants				
	PC7. prepare a design for the installation of micro-irrigation system				
	PC8. comply with the relevant regulatory requirements in the micro-irrigation plan				
	PC9. Ascertain the cost of the equipment required				

	<i>Arrange the necessary resources</i>	10	15		15
	PC9. identify all the installation material, Personal Protective Equipment (PPE) tools and equipment required for installation of the micro-irrigation system				
	PC10. identify the relevant vendors that retail the required resources				
	PC11. arrange the funds required for the purchase				
	PC12. procure the required installation material, tools, equipment and PPE based on the quality offered by the vendor				
	PC13. arrange for safe storage of the installation material and PPE				
	PC14. maintain the record of purchase				
	<b>Total Marks</b>	<b>30</b>	<b>40</b>	-	<b>30</b>
<b>AGR/N1005: Install the micro-irrigation system</b>	<i>Install the micro-irrigation system</i>	15	25		15
	PC1. create holes in the water tubes as per the requirement				
	PC2. lay the water tubes in the field as per the plan				
	PC3. secure the water tubes on the ground using ground stakes/ conduit brackets				
	PC4. install emitters/ sprayers/ foggers at the identified spots				
	PC5. set up the irrigation timer				
	PC6. apply cap on the other end of the main tube				
	PC7. connect the main water tube to the water outlet at the farm				
	PC8. connect vacuum breaker with the pressure regulator to prevent backflow of water				
	PC9. install water-pump at the main water supply				
	PC10. install water filter to prevent silt and dirt from getting in the water tubes				
	PC11. fix flush valves at the identified spots to facilitate flushing of any deposits in the water tubes				
	PC12. install the fertigation equipment to deliver water mixed with fertilizers to plants				
	PC13. run clean water through the tubes to remove any dirt and debris inside them				
	PC14. test the micro-irrigation system to see if it functions as expected				
	PC15. perform troubleshooting for any issues identified with the micro-irrigation system				
	PC16. cover the water tubes with soil/ mulch as per the plan				
	<i>Carry out post-installation activities</i>	10	10		10

	PC17. explain the functioning of the micro-irrigation system to the farmer				
	PC18. describe the process to carry out minor repair and maintenance of the micro-irrigation system along with the maintenance schedule				
	PC19. explain the process to retrieve the micro-irrigation system after harvesting				
	PC20. list the vendors from whom the farmer can procure authentic spare parts and maintenance tools/ equipment				
	PC21. perform documentation as per the organisational procedure				
	<i>Optimise resource utilisation</i>	5	5		5
	PC22. optimise usage of various material in different tasks/ activities/ processes				
	PC23. optimise usage of electricity/energy in various tasks/ activities/ processes				
	PC24. connect electrical tools and equipment safely and turn off when not in use				
	<b>Total Marks</b>	<b>30</b>	<b>40</b>		<b>30</b>
<b>AGR/N1006: Perform repair and maintenance of the micro-irrigation system</b>	<i>Perform repair and maintenance</i>	20	25		20
	PC1. examine the emitters for the required level of pressure				
	PC2. check the fertigation system and irrigation timer for correct functioning				
	PC3. remove the flush valves and water tube cap as per the SOP				
	PC4. run clean water through the water tubes at high pressure to flush any formations inside				
	PC5. clean the water filter to remove any blockage inside it				
	PC6. carry out chlorine/ acid treatment to remove salts such carbonates, bi-carbonates, iron, calcium, etc.				
	PC7. set the emitters/ foggers/ sprinklers in the correct position to effectively supply water to plants				
	PC8. identify damaged or malfunctioning micro-irrigation system components such as emitter, sprayer, fogger, water filter, water-tubes, etc.				
	PC9. replace the damaged or malfunctioning components as per the SOP				
	PC10. maintain the detailed record of maintenance				
	PC11. schedule the next maintenance as per the maintenance schedule				
<i>Perform waste management</i>	10	15		10	

	PC12. segregate waste into different categories				
	PC13. dispose non-recyclable waste appropriately				
	PC14. deposit recyclable and reusable material at the identified location				
	Total Marks	<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>	<i>10</i>	<i>5</i>	-	<i>10</i>
	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 sanitization norms including distancing from sick people				
	<i>Maintain clean and safe workplace</i>	<i>15</i>	<i>15</i>	-	<i>15</i>
	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 incase of outbreak of any disease/disaster					
<i>Administer appropriate emergency procedures</i>	<i>15</i>	<i>5</i>	-	<i>10</i>	

	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. 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
<b>DGT/VSQ/N0102: Employability Skills (60 Hours)</b>	<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 &amp; 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 &amp; 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				
<i>Entrepreneurship</i>	2	3	-	-
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research				
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion				
PC25. identify sources of funding, anticipate, and mitigate any financial/legal hurdles for the potential business opportunity				
<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 &amp; 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				
Total Marks	20	30	-	
<b>Grand Total</b>	150	175		125

### Annexure 6: Assessment Strategy

as involved in identifying, gathering, and interpreting information to evaluate the Candidate on the required competencies of the program.

#### Program Overview

ultimate importance that individuals dealing with crop production or livestock have the requisite knowledge and competencies to undertake assessment Criteria, SSC in association with empanelled AAs, define the test structure for the given job roles to cover the required skills and strategy consists of the following:

Assessments : 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
<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>