QUALIFICATION FILE

Hydroponics Producer

☒ 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:

Additional Skill Acquisition Programme Kerala (ASAP Kerala)

KINFRA Film and Video Park, Sainik School P.O., Kazhakkoottam

Trivandrum, Kerala, India – 695585

Table of Contents

Section 1: Basic Details

1.	**Qualification Name**	**Hydroponics Producer**	
2.	**Sector/s**	**Agriculture**	
3.	**Type of Qualification: ☒ New ☐ Revised ☐ Has Electives/Options ☐OEM**	**NQR Code & version of existing/previous qualification:** *(change to previous, once approved)* *NA*	**Qualification Name of existing/previous version: NA**
4.	**a. OEM Name** **b. Qualification Name** (*Wherever applicable)*	**NA**	
5.	**National Qualification Register (NQR) Code &Version** (*Will be issued after NSQC approval)*		**6. NCrF/NSQF Level:** *4*
7.	**Award (Certificate/Diploma/Advance Diploma/ Any Other** *(Wherever applicable specify multiple entry/exits also & provide details in annexure)*	Certificate	
8.	**Brief Description of the Qualification**	Hydroponics producers are individuals who specialize in growing plants using the hydroponic method. Hydroponics is a soilless growing technique that involves cultivating plants in a nutrient-rich water solution. Farmers who work with hydroponics employ various systems and methods to provide the necessary nutrients, water, and oxygen directly to the plant roots. The qualification imparts necessary entrepreneurship skills for successful commencement and management of the business.	
9.	**Eligibility Criteria for Entry for Student/Trainee/Learner/Employee**	**a. Entry Qualification & Relevant Experience:**	

S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)
1	12th grade pass	NA
2	Completed 2nd year of 3-year diploma (after 10th)	NA
3	10th grade pass with two years of any combination of NTC/NAC/CITS or Equivalent	NA
4	8th pass plus 2-year NTC plus 1-Year NAC plus 1-Year CITS	NA

5	11th Grade Pass	1 year relevant experience in on farm work
6	10th Grade pass	3 years relevant experience in on-farm work
7	Previous relevant qualification of NSQF level 3.5	1.5 year relevant experience in on-farm work
8	Previous relevant qualification of NSQF level 3	3 years relevant experience in on-farm work

b. Age: <Please specify age only in case of any legal restrictions>

10.	**Credits Assigned to this Qualification, Subject to Assessment** *(as per National Credit Framework (NCrF))*	16	**11. Common Cost Norm Category (I/II/III)** *(wherever applicable)*: *II*
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)* : **480 hours**	☒**Offline** ☐**Online** ☐**Blended**	
14.	**Aligned to NCO/ISCO Code/s** *(if no code is available mention the same)*	6113.0301,6113.9900	
15.	**Progression path after attaining the qualification** *(Please show Professional and Academic progression)*	**Vertical** Hydroponics Producer Trainee Hydroponics Producer Hydroponics Farm Supervisor Hydroponics Farm Manager	

Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)
Classroom (offline)	90 + 60(ES)	120	210	0	480

(Refer Blended Learning Annexure for details)

		Horizontal Hydroponics Producer Hydroponics Farm Entrepreneur small scale Hydroponics Farm Entrepreneur large scale The course equips the student to become an entrepreneur directly after the completion of the course. However, in the absence of sufficient capital to start a commercial farm, the student can follow the above vertical job progression.
16.	**Other Indian languages in which the Qualification & Model Curriculum are being submitted**	**Hindi**
17.	**Is similar Qualification(s) available on NQR-if yes, justification for this qualification**	**☒ Yes ☐ No** **URLs of similar Qualifications: https://nqr.gov.in/qualifications/2788** **The primary objective of the course is to equip the student to become a successful entrepreneur in Hydroponics farming and the course differs with the existing one in terms of following parameters ;** • **Entry criteria** • **Nature of validations collected** • **Opportunity to become an entrepreneur directly** • **New Technologies in Hydroponics farming are discussed in addition to the conventional method**
18.	**Is the Job Role Amenable to Persons with Disability**	**☐ Yes ☒ No** **If "Yes", specify applicable type of Disability:**
19.	**How Participation of Women will be Encouraged**	**50% seat allocation to women**
20.	**Are Greening/ Environment Sustainability Aspects Covered** *(Specify the NOS/Module which covers it)*	**☐ Yes ☒ No**
21.	**Is Qualification Suitable to be Offered in Schools/Colleges**	**Schools ☐ Yes ☐ No Colleges ☒ Yes ☐ No**
22.	**Name and Contact Details of Submitting / Awarding Body SPOC** *(In case of CS or MS, provide details of both Lead AB & Supporting ABs)*	**Name: Dr. Usha Titus** **Email: cmd@asapkerala.gov.in** **Contact No.: 04712772500** **Website: www.asapkerala.gov.in**

23.	**Final Approval Date by NSQC:** 31st January 2024	**24. Validity Duration: 3 years**	**25. Next Review Date :** 31st January 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 to the curriculum document.

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

S. No	NOS/Module Name	NOS/Module Code & Version *(if applicable)*	Core/ Non-Core	NCrF/NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) *(if applicable)*
1.	Basics of Hydroponics	ASP/N1001 Version 1	Core	4	1	23	7	0	0	30	28	10	0	14	52	
2.	Nutrient management	ASP/N1002 Version 1	Core	4	1	12	18	0	0	30	15	30	0	12	57	
3.	Design and construction of commonly used hydroponic systems	ASP/N1003 Version 1	Core	4	1	9	21	0	0	30	22	0	0	8	30	
4.	Crop Management	ASP/N1004 Version 1	Core	4	6	14	26	140	0	180	40	54	0	20	114	
5.	Hydroponics under protected structures	ASP/N1005 Version 1	Core	4	2	5	20	35	0	60	20	12	0	25	57	
6.	Operationalizing a Hydroponics farm	ASP/N1006 Version 1	Core	4	2	15	10	35	0	60	33	44	0	23	100	
7.	Management of a commercial Hydroponics Farm	ASP/N1007 Version 1	Core	4	1	12	18	0	0	30	20	35	0	15	70	

S. No	NOS/Module Name	NOS/Module Code & Version *(if applicable)*	Core/ Non-Core	NCrF/NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) *(if applicable)*
8.	Employability Skills	DGT/VSQ/N0102 Version 1	Non Core		2	60	0	0	0	60	0	0	0	0	0	
Duration (in Hours) / Total Marks					**16**	**150**	**120**	**210**	**0**	**480**	**178**	**185**	**0**	**117**	**480**	

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: 50% *(Every Trainee should score specified minimum passing percentage in each mandatory and selected elective NOS/Module to successfully clear the assessment.)*

Section 3: Training Related

1.	**Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	**Graduate in Agriculture or having certification in hydroponics:5 years' experience in total**
2.	**Master Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	**Graduate in Agriculture or having certification in hydroponics: 7 years' experience in total**
3.	**Tools and Equipment Required for Training**	☒Yes ☐No (*If "Yes", details to be provided in Annexure)*
4.	**In Case of Revised Qualification, Details of Any Upskilling Required for Trainer**	NA

Section 4: Assessment Related

1.	**Assessor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	**Graduate in Agriculture or having certification in hydroponics:7 years experience in total**
2.	**Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	**Graduate in Agriculture or having certification in hydroponics:10 years experience in total**

3.	**Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	**Postgraduate in Agriculture or having certification in hydroponics:10 years experience in total**
4.	**Assessment Mode** *(Specify the assessment mode)*	**Offline**
5.	**Tools and Equipment Required for Assessment**	☒ Same as for training ☐ Yes ☐ 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.	**Latest Skill Gap Study (not older than 2 years) (Yes/No):** Yes Following is a gist of findings from the study conducted by International Food Policy Research Institute and Foundation for Sustainable Agriculture on 'Youth Entrepreneurship in Agribusiness in India dated January 2023. ● Agriculture and allied sectors such as livestock development, animal husbandry, fisheries, and other newly emerging value chains provide new opportunities for youth to engage in agriculture and entrepreneurial activities. Yet, the implementation of these programs at various levels is thwarted by the need for technical and business skills, institutional support, access to finance, and mentorship for the rural youth to sustain and grow their businesses. ● The range of entrepreneurial activities in agriculture varies widely from input supply, product aggregation, micro-irrigation, and consultancy services to small-scale businesses that produce specialized vegetables for urban markets. These activities require various levels of skills and investments to initiate and run. ● Leadership and people skills are required to complement their business skills. Such soft social skills are also essential to expand their businesses into areas that go beyond their familiar business spaces.
2.	**Latest Market Research Reports or any other source (not older than 2 years) (Yes/No):** Yes **Reports link :** https://www.maximumcultivator.com/post/hydroponic-jobs-in-india-exploring-the-growing-industry#:~:text=If%20you%20are%20interested%20in,and%20start%20your%20hydroponic%20journey. https://www.mdpi.com/2077-0472/12/5/646 **Gist of the research** The hydroponics industry in India is still in its nascent stage, but it is growing rapidly. Many startups and established companies are offering hydroponic farming solutions, and they require skilled professionals to operate and manage the systems. Hydroponic jobs in India are on the rise as more people turn towards sustainable farming practices. Hydroponics is a method of growing plants without soil, using nutrient-rich water instead. This approach is gaining popularity in India due to its high yield, minimal water usage, and controlled environment. Here are some of the hydroponic jobs available in India:

	• Hydroponic farm manager: A hydroponic farm manager is responsible for managing the hydroponic farm, including monitoring the plants' growth, managing the nutrient solution, and overseeing the system's maintenance. • Hydroponic technician: A hydroponic technician is responsible for installing and maintaining hydroponic systems, including pumps, reservoirs, and irrigation systems. • Hydroponic sales representative: A hydroponic sales representative sells hydroponic systems and equipment to customers, including farmers, commercial growers, and home gardeners. • Hydroponic agronomist: A hydroponic agronomist provides technical support to hydroponic farmers, including advice on nutrient management, pest control, and crop production. • Hydroponic research scientist: A hydroponic research scientist conducts research on hydroponic farming methods and develops new technologies to improve crop production. Hydroponic jobs offer many benefits, including job security, a dynamic work environment, and the opportunity to contribute to sustainable agriculture. As the hydroponic industry in India continues to grow, the demand for skilled professionals in this field is expected to increase.
3.	**Government /Industry initiatives/ requirement (Yes/No):** Yes
4.	**Number of Industry validation provided:** 24
5.	**Estimated nos. of persons to be trained and employed:** Approx 100 per year
6.	**Evidence of Concurrence/Consultation with Line Ministry/State Departments:** *Consultation letter sent to Office of the Principal Secretary,Agriculture and Farmers Welfare.Reply awaited.* If "No", why:

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	**Annexure:** NCrF/NSQF level justification based on NCrF level/NSQF descriptors *(Mandatory)*	*Annexure 1*
2.	**Annexure:** List of tools and equipment relevant for qualification *(Mandatory, except in case of online course)*	*Annexure 2*
3.	**Annexure:** List of Industry validations	*Annexure 3*
4.	**Annexure :** Training and Employment Details	*Annexure 4*
5.	**Annexure:** Detailed Assessment Criteria *(Mandatory)*	*Annexure 5*
6.	**Annexure:** Assessment Strategy *(Mandatory)*	*Annexure 6*

7.	**Annexure:** Acronym and Glossary *(Optional)*	*Annexure 7*
8.	**Supporting Document:** Model Curriculum *(Mandatory – Public view)*	*Supporting document 1*
9.	**Supporting Document:** Career Progression *(Mandatory - Public view)*	*Supporting Document 2*
10.	**Supporting Document:** Occupational Map *(Mandatory)*	*Supporting Document 2*
11.	**Supporting Document:** Assessment SOP *(Mandatory)*	*Supporting Document 3*
12.	**Any other document you wish to submit:**	*Supporting Document 4-Industry validations*

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	Study the basics of hydroponics, differentiation, and advantages over conventional farming technique. Will learn and practice effective crop management and nutrient supply.	• Possesses specialized knowledge of procedures employed in both routine and non-routine context. • Has knowledge of collecting and interpreting the available information, drawing conclusions communicating the same.	4
Professional and Technical Skills/ Expertise/ Professional Knowledge	The competence gain is deepened by on-the-job training and practical sessions on plant nutrition as well as familiarization with various types of hydroponics systems.. At the end of training, one will gain hands-on experience and in depth knowledge in the professional application of the learned farming techniques.	• Possesses specialized professional and technical skills; displays clarity of professional knowledge and technical skills in broad range of activities/ tasks. • Can clearly identify the relevant tools; and has advanced knowledge of materials in most routine/ non-routine contexts.	4
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	The extensive classroom time and practical training makes an individual competent to work as a Hydroponics Micro	Has good skills for self-employment and entrepreneurship skills/ entrepreneurial Mind-set which may	4

	Entrepreneur. .Apart from being in an assistive gardener role, the course equips the student to become an entrepreneur in Hydroponics farming field.	potentially create job for more persons (say 3 to 5).	
Broad Learning Outcomes/Core Skill	● Understanding basic concepts of Hydroponics ● To understand the advantages of Hydroponics over conventional farming techniques ● To be able to design and maintain a hydroponics garden/farm. ● Understand and practice proper nutrient management ● Gain employability skills and entrepreneurship in this field	The candidate must be able to carry out a specialized job/ work/ tasks in a familiar/ un-familiar, predictable/ un-predictable, routine/ non-routine, situation of multiple options/ choices	4
Responsibility	As a Hydroponics Producer, the learner will be knowledgeable on the best crop management techniques and would smoothen the functioning of Hydroponics garden/farm. A Hydroponics Producer will also be able to design and set up hydroponics garden as well as able to perform the day to day operations of a farm/garden.	● Takes complete responsibility for delivery and quality of own work and output as also the subordinates. ● Shares responsibility for the group tasks.	4

Annexure 2 : Tools and Equipment (Lab Set-Up)

List of Tools and Equipment

Batch Size: 25-30

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	Shovel	Small, handheld shovel or a scoop with stainless steel blade.	15
2	Trowel	Stainless steel blade with ergonomic handle	15
3	Watering Can or Hose	Watering can made of food grade plastic with capacity 4L to 8L.	15
4	pH Testing Kit	Digital pH meter	30
5	EC meter/TDS meter	● Accuracy: ±1% of the reading or better. ● Resolution: At least 0.1 µS/cm	20
6	Nutrient Solution	As per the stage of usage	30
7	Gardening Gloves	Waterproof,breathable and flexifit	30
8	Air Pumps and Air Stones	Airpump that can provide at least 500-600 ml of air per minute for each gallon of nutrient solution.	15
9	Growing Containers	Containers of food safe plastic of variable sizes	30
10	Nutrient Solution Testing Kit	As per the stage of use	30
12	Pipettes or Droppers	Variable sizes,chemical resistant with graduation mark	30
13	Pest Control Supplies	As per the physiological disorders of crops	15
14	Plant Pruners/Scissors	Stainless steel scissors of big size	30
15	Timers	Digital timers	15
16	Packing materials	Multiple size,food safe plastic	30
17	Labelling machine	As per industry standard	30

18	Masks	N95 or equivalent	30

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. Video Presentations
2. Whiteboard
3. Markers

Annexure 3: Industry Validations Summary

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

S. No	Organization Name	Representative Name	Designation	Contact Address	E-mail ID
1	Way2Grow AgriTech Pvt Ltd	Mr. Ramesh G	CEO	MaDeIT InnovationFoundation,IIITDM, Kancheepuram,Melakotaiyur-600127,Tamil Nadu	ramesh@way2grow.tech
2	Ela Sustainable Solutions Pvt Ltd.	Mr. Shijin V S	CEO	No. 6/858-M,2nd Floor,Valamkottil Towers,Kakkanad,Ernakulam-682021	shijin@elagreens.com
3	PlantMe Agro Solutions	Mr.Nithin Kumar	MD	PlantMe Agro Solutions,Companyppadi,Aluva Ernakulam-683107	coo@plantmeagro.com
4	Rise Hydroponics	Mr.Vivek Kumar Shukla	Co-Founder	311,Sopan Apartment,Chandkheda,Ahamedabad-382424	risehydroponics@gmail.com
5	Uptown Urban Farms Pvt. Ltd	Mr. Thanveer Ahmed S	CEO	Uptown Urban Farms Pvt. Ltd,Neermankara,Trivandrum-695040	ceo@uptownurbanfarm.com
6	Mizzu Hydroponics	Mr. Ruban S	Managing Director	10, NSK Street Selvapuram South	mizzufarms@gmail.com

				Selvapuram, Tamil Nadu 641026	
7	Self employed expert	Mr. Praveen Kumar K	Freelance consultant	ORA 34,Perukavu,Trivandrum-695573	peekay_yg@hotmail.com
8	Jawaharlal Nehru Tropical Botanic Garden	Ms. Deepthi Kumary K P	Technical Officer	JNTBGRI,Karimancode,Palode, Trivandrum-695562	deepthisatheesan@gmail.com
9	Orgayur Production Pvt Ltd	Dr. Alwin Raj	Director	Orgayur Production Pvt Ltd ,Kottarakara,Kollam,Kerala-691510	hr@orgaayur.com
10	Pandora Greens	Mr. Sholin Saji	Founder	Pandora Greens,Keston Rd,Kowdiar Trivandrum	contactus@pandoragreens.in
11	Nutri Leaves Organic	Mr.. A K Abdulla	Managing Director	Nutri leaves, Meppady, Wynad, Kerala	abdullarpn@gmail.com
12	Krishi Bhavan, Muthalamada	Ms. Aswathy C	Agricultural Officer	Krishi Bhavan,SH Muthalamada North,Palakkad,Kerala	achuklgd@gmail.com
13	Krishi Bhavan,Kollencode	Mr. Rajesh P K	Asst. Agriculture Officer	Krishi Bhavan,SH South,Kollengode,Palakkad	rajeshrajnknd@gmail.com
14	Krishi Bhavan, Muthalamada	Ms. Vidya S	Agricultural Assistant	Krishi Bhavan,SH Muthalamada North,Palakkad,Kerala	vidyachenthamara@gmail.com
15	Krishi Bhavan,Kollencode	Mr. Sreejith K	Field Assistant	Krishi Bhavan,SH South,Kollengode,Palakkad	sjithtky@gmail.com
16	Krishi Bhavan, Muthalamada	Mr. Sajith Bhanu M B	Agricultural Assistant	Krishi Bhavan,SH Muthalamada North,Palakkad,Kerala	--
17	Krishi Bhavan,Kollencode	Mr. Rahul Raj M	Agriculture Officer	Krishi Bhavan,SH South,Kollengode,Palakkad	Rahulrajan2013@gmail.com
18	Krishi Bhavan,Kollencode	Ms. Jisha Rajan	Agriculture Assistant	Krishi Bhavan,SH South,Kollengode,Palakkad	--
19	Krishi Bhavan,Peruvembu	Ms. Manjusha M	Agriculture Assistant	Krishi Bhavan,Peruvembu,Palakkad,Kerala	--

20	Krishi Bhavan,Peruvembu	Mr. S Anandhakrishnan	Agriculture Officer	Krishi Bhavan,Peruvembu,Palakkad,Kerala	sansanandhu@gmail.com
21	Agriculture Technology management Agency(ATMA)	Ms. Manju K	Block Technology manager	ATMA,Civil Station Rd.,Vidya Nagar,Kollam,Kerala	manjukkittath@gmail.com
22	Agriculture Technology management Agency(ATMA)	Ms. Smitha K	Asst. Technology manager	ATMA,Civil Station Rd.,Vidya Nagar,Kollam,Kerala	manjukkittath@gmail.com
23	Krishi Bhavan,Vadavannur	Ms. Vidya V	Agriculture Asst.	Krishi Bhavan,Keezhachira,Vadavannur,Palakkad,Kerala	vidyasankrish@gmail.com
24	Krishi Bhavan,Vadavannur	Mr. Basheer Ahmed	Agriculture Officer	Krishi Bhavan,Keezhachira,Vadavannur,Palakkad,Kerala	--
25	Self employed farmer	Mr. Jayanarayanan	Farmer	NA	--
26	Farmer	Mr. Muthurajan K.K	Organic farmer	NA	--
27	Farmer	Mr. M J Francis	Farmer	NA	--

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	100	75-80%	50	70%	NA	NA
2025	120	75-80%	60	70%	NA	NA
2026	150	75-80%	75	90%	NA	NA

Data to be provided year-wise for next 3 years

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

1.
2.

Content availability for previous versions of qualifications: NA

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

Languages in which Content is available: NA

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
NOS 1 - Basics of Hydroponics	**PC1** - Evaluate the basic understanding of hydroponics gardening	2	0	0	1
	PC2 - Assess the knowledge on the features and advantages of soilless cultivation	3	0	0	1
	PC3 - Evaluate the knowledge of the various environmental factors affecting the plant growth	5	0	0	0
	PC4 - Knowledge about the importance of plant nutrition and essential nutrition requirements for healthy plant growth.	5	3	0	3
	PC 5 - Assess the ability to differentiate between different hydroponics systems	2	4	0	2
	PC 6 -Knowledge on concept and design of Hydroponics systems	3	0	0	2
	PC 7 -Evaluate the awareness on site considerations for setting up Hydroponics systems	2	0	0	3
	PC 8 - Evaluate knowledge on the growing media	4	3	0	0
	PC 9 - Assess the basic knowledge on various pumping and electrical systems	2	0	0	2
	Total Marks	**28**	**10**	**0**	**14**

NOS 2 - Nutrient management	**PC1 -** Basic Understanding of various nutrients and their effect on plants	2	7	0	0
	PC2 - Ability to select the right component salts in proper ratio	7	12	0	5
	PC 3 - Knowledge about TDS/EC and its significance	3	4	0	3
	PC 4 - Knowledge about pH and its effects on plant growth	3	7	0	4
	Total Marks	**15**	**30**	**0**	**12**
NOS 3 - Design & construction of commonly used hydroponics systems	**PC1 -** Knowledge on differentiation and features of NFT/DFT	6	0	0	4
	PC2 - Evaluate the knowledge on Dutch bucket system	8	0	0	2
	PC3 - Evaluate the knowledge on Drip system	8	0	0	2
	Total Marks	**22**	**0**	**0**	**8**
NOS 4 - Crop Management	**PC1 -** Evaluate knowledge about crop selection.	5	10	0	3
	PC2 - Assess knowledge on seeding production.	6	8	0	2
	PC3 - Evaluate knowledge on Training/Pruning	5	7	0	5
	PC 4 - Evaluate awareness about nutrient management	6	10	0	3
	PC 5 - Evaluate awareness about best practices for plant protection	5	6	0	2
	PC 6 -Assess knowledge on physiological disorders	4	3	0	1
	PC 7 - Assess knowledge on harvest and post harvest operations	9	10	0	4
	Total Marks	**40**	**54**	**0**	**20**

NOS 5 - Hydroponics under protected structures	**PC1 -** Evaluate the understanding of Polyhouse, Rain Shelter , Nethouse	8	7	0	10
	PC2 -Knowledge on Indoor Farms - Vertical Farming	4	0	0	5
	PC 3-Awareness about New Technologies in Hydroponics with Controlled Environment Agriculture	8	5		10
	Total Marks	**20**	**12**	**0**	**25**
NOS 6 – Operationalizing a Hydroponics farm	**PC1 -** Assess the ability to analyze and make decisions based on market trends	5	0	0	5
	PC 2 – Assess knowledge about methods for effective resource Utilization	8	12	0	5
	PC 3 - Asses ability to formulate apt marketing strategy	5	10	0	0
	PC 4 – Evaluate knowledge on revenue model creation and Management	5	7	0	3
	PC 5 – Assess awareness about legal compliances essential for the Business	10	0	0	5
	PC 6 – Check the basic understanding of software tools required for the business	0	15	0	5
	Total Marks	**33**	**44**	**0**	**23**
NOS 7 - Management of a commercial Hydroponics farm	**PC1 -** To evaluate the understanding on developing Business models	5	10	0	2
	PC 2 - To assess awareness about various support schemes	5	0	0	5

	PC 3 - Asses ability to prepare project proposals	5	10	0	5
	PC 4 - Ability to perform the day to day activities of a farm	5	15	0	3
	Total Marks	**20**	**35**	**0**	**15**
Grand Total		**178**	**185**	0	**117**

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.

Mention the detailed assessment strategy in the provided template.

1. Assessment System Overview:

- Batches assigned to the assessment agencies for conducting the assessment on SIP or email.
- Assessment agencies send the assessment confirmation to VTP/TC looping ASAP Kerala
- Assessment agency deploys the ToA certified Assessor for executing the assessment.
- ASAP Kerala monitors the assessment process & records.

2. Testing Environment:

- Check the Assessment location, date and time
- If the batch size is more than 30, then there should be 2 Assessors.
- Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.

3. Assessment Quality Assurance levels/Framework:

- Question bank is created by the Subject Matter Experts (SME) are verified by the other SME
- Questions are mapped to the specified assessment criteria
- Assessor must be ToA certified & trainer must be ToT Certified

4. Types of evidence or evidence-gathering protocol:

- Time-stamped & geotagged reporting of the assessor from assessment location
- Centre photographs with signboards and scheme specific branding

5. Method of verification or validation:

- Surprise visit to the assessment location

6. Method for assessment documentation, archiving, and access

- Hard copies of the documents are stored.

On the Job:

1. Each module (which covers the job profile of Automotive Service Assistant Technician) will be assessed separately.
2. The candidate must score 60% in each module to successfully complete the OJT.
3. Tools of Assessment that will be used for assessing whether the candidate is having desired skills and etiquette of dealing with customers, understanding needs & requirements, assessing the customer and perform Soft Skills effectively:
   • Videos of Trainees during OJT
4. Assessment of each Module will ensure that the candidate is able to:

- Effective engagement with the customers
- Understand the working of various tools and equipment.

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