Model Curriculum

QP Name: Aquaculture Technical Supervisor

Options: Bio floc Technology/ RAS Technology

QP Code: AGR/Q4903

Version: 3.0

NSQF Level: 5

Model Curriculum Version: 2.0

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

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Training Parameters

Sector	Agriculture
Sub-Sector	Fisheries
Occupation	Aquaculture
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/NIL
Minimum Educational Qualification and Experience	Minimum Educational Qualification: Completed 2nd year of UG OR Pursuing 2nd year of UG and continuous education OR Completed 2nd year of diploma (after 12th) OR Pursuing 2nd year of 2-year diploma after 12th OR 12th pass with 1-year Vocational Education & training (NTC or NAC or CITS) OR Completed 3-year diploma after 10th with 1- year relevant experience OR 12th Grade pass with 2- year relevant experience OR 10th Grade pass with 4-year relevant experience OR Previous relevant Qualification of NSQF Level 4 and with minimum education as 8th Grade pass with 3-year relevant experience OR Previous relevant Qualification of NSQF Level 4.5 with 1.5- year relevant experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	30/12/2021
Next Review Date	30/12/2024
NSQC Approval Date	30/12/2021
QP Version	3.0

Model Curriculum Creation Date	30/12/2021
Model Curriculum Valid Up to Date	30/12/2024
Model Curriculum Version	2.0
Minimum Duration of the Course	480 Hours
Maximum Duration of the Course	600 Hours

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills to:

- Describe the process of preparing the pond for aquaculture.
- Demonstrate the process of carrying out aquaculture operations.
- Demonstrate various practices to ensure health, hygiene and safety during culture operations.
- Explain the basic entrepreneurial activities for small enterprise.
- Describe the process of undertaking employability and entrepreneurial practices.
- Demonstrate the process of using the biofloc technology to culture fish.
- Demonstrate the process of setting up and using the recirculating aquaculture system.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Bridge Module	**05:00**	**00:00**	**0:00**	**0:00**	**05:00**
Module1: Introduction to the role of an Aquaculture Technical Supervisor	05:00	00:00	0:00	0:00	05:00
AGR/N4916 Undertake the pond preparation activities **NOS Version- 2.0** **NSQF Level- 5**	**25:00**	**60:00**	**0:00**	**0:00**	**85:00**
Module 2: Pond preparation activities	25:00	60:00	0:00	0:00	85:00
AGR/N4917: Carry out aquaculture operations **NOS Version- 2.0** **NSQF Level- 5**	**30:00**	**60:00**	**0:00**	**0:00**	**90:00**
Module 3: Process of carrying out aquaculture operations	30:00	60:00	0:00	0:00	90:00
AGR/N4918: Ensure health, hygiene and safety during culture operations **NOS Version- 2.0** **NSQF Level- 5**	**30:00**	**60:00**	**0:00**	**0:00**	**90:00**

Module 4: Health, hygiene and safety procedures	30:00	60:00	0:00	0:00	90:00
DGT/VSQ/N0103 Employability Skills NOS Version-1.0 NSQF Level-5	**90:00**	**00:00**	**0:00**	**0:00**	**90:00**
Module 5: Employability Skills	90:00	00:00	0:00	0:00	90:00
Total Duration	**180:00**	**180:00**	**0:00**	**0:00**	**360:00**
OJT: 120 hours					

Optional Module

The table lists the modules and their duration corresponding to the Optional NOS of the QP.

Option 1: Biofloc Technology

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/N4959 Culture fish using the biofloc technology NOS Version- 1.0 NSQF Level- 5	**20:00**	**40:00**	**0:00**	**0:00**	**60:00**
Module 6: Process of using biofloc technology to culture fish	20:00	40:00	0:00	0:00	60:00
Total Duration	**20:00**	**40:00**	**0:00**	**0:00**	**60:00**

Option 2: RAS Technology

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/N4960 Set up and use the Recirculating Aquaculture System NOS Version- 1.0 NSQF Level- 5	**20:00**	**40:00**	**0:00**	**0:00**	**60:00**
Module 7: Installation and use of the recirculating aquaculture system	20:00	40:00	0:00	0:00	60:00
Total Duration	**20:00**	**40:00**	**0:00**	**0:00**	**60:00**

Module Details

Module 1: Introduction to the role of an Aquaculture Technical Supervisor

Bridge Module

Terminal Outcomes:

- Discuss the job role of an Aquaculture Technical Supervisor

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

Module 2: Pond preparation activities

Mapped to AGR/N4916 v2.0

Terminal Outcomes:

- Describe the process of preparing the pond for aquaculture.
- Demonstrate the process of carrying out pre-stocking and stocking activities.
- Demonstrate various practices for effective resource optimisation and waste disposal.

Duration: 25:00	**Duration: 60:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the process of collecting a soil sample and getting the levels of organic matters and pH tested through a soil-testing lab. • Describe the process of de-mudding, draining and sun drying the pond. • Describe the process of constructing dykes in the pond and installing inlet and outlet pipes. • State appropriate treatment to be applied to the soil to improve its fertility. • Explain the importance of using the appropriate Personal Protective Equipment (PPE) for applying chemicals in the pond. • Describe the process of removing aquatic weed from the pond. • Describe the process of treating water with chlorine. • Explain the importance of ensuring an optimum level of water, depth and stocking density in the culture pond. • Describe various methods of eradicating and controlling aquatic insects, predatory and weed fish from the pond. • List different types of fertilizers to be applied in the pond at different stages of culture operations. • Describe the process of stocking seeds after due acclimatisation maintaining appropriate density and species ratio.	• Demonstrate how to collect a soil sample from the culture pond. • Demonstrate the process of applying basal manure, lime, gypsum or any other necessary soil treatment to improve the soil fertility as recommended by the lab. • Demonstrate the process of carrying out de-mudding in the pond. • Demonstrate the process of constructing dykes in the pond and installing inlet and outlet pipes for efficient entry and exit of water. • Demonstrate the use of appropriate Personal Protective Equipment (PPE). • Demonstrate the process of removing aquatic weed and applying appropriate treatment to control aquatic insects before stocking seeds. • Demonstrate the process of acclimatising seeds before stocking. • Demonstrate the process of applying lime or other approved disinfectant to treat the wastewater for recycling. • Demonstrate various practices to optimise the usage of various resources such as water and electricity.

• Describe the process of using lime and other approved disinfectants to treat the wastewater for recycling. • Explain the quality parameters to be checked to ensure treated water is suitable for re-use. • Explain the benefits of resource optimisation.	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Water Pump, Air or Oxygen Diffusers, Aerators, Mechanical Filters - like Leaf Filters, Tubes, Power Backup	

Module 3: Process of carrying out aquaculture operations

Mapped to ARG/N4917 v2.0

Terminal Outcomes:

- Demonstrate the process of carrying out post-stocking activities.
- Demonstrate the process of performing nutrition and disease management.
- Describe the process of supervising harvesting and post-harvest management.
- Demonstrate various practices for effective waste disposal.
- Explain different waste to promote diversity and inclusion at work.

Duration: 30:00	Duration: 60:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• State the appropriate type and dosage of manure, fertilizer and lime to be applied in the culture pond. • Describe the process of sampling the soil, water and fish. • Describe the process of netting for efficient management of the crop. • Explain the importance and process of aerating and replenishing water in the culture pond. • State feed requirement of various culture species at various stages of their growth. • Explain how to determine the dose of supplementary feed and the practice of split feeding. • Explain different types of fish feed such as wet feed/ floating feed/ pellet feed. • Explain the importance of maintaining the required nutrients such as protein in the feed and following the feeding schedule. • State various preventive and prophylactic measures to implement in the culture pond to control disease among fish. • State the signs of problem/disease among fish in the pond. • Explain the importance of separating the diseased fish from the healthy fish and quarantine them to prevent	• Demonstrate the process of applying manure, fertilizer and lime in the pond. • Demonstrate how to perform netting for efficient management of fish. • Demonstrate the process of replenishing water in the culture pond at the recommended intervals. • Demonstrate the process of carrying out split feeding. • Show how to fed culture species with wet feed/ floating feed/ pellets containing the required nutrients. • Show how to implement preventive and prophylactic measures in the culture pond to control disease among fish. • Demonstrate the process of harvesting the cultured fish using the appropriate method. • Demonstrate the process of recycling and disposing of different types of waste in compliance with the applicable laws and regulations. • Demonstrate various practices required to maintain a conducive environment for Persons with Disabilities (PwD) and all genders at work.

disease outbreak. • Explain the relevant therapeutic practices based on the type and severity of disease/ infection. • State the signs of improvement in the quarantined fish. • Explain maturity indicators of the fish to check its readiness for being harvested. • Describe the appropriate method of harvesting the cultured species using the nets of the different mesh size. • State the recommended temperature, relative humidity and hygienic conditions for storing various harvested species. • Explain various recommended practices to ensure minimum handling of the stock between harvesting and transportation. • Describe the methods of recycling and disposing of different types of waste. • Define the need for appropriate verbal and non-verbal communications while interacting with all genders and PwD.	

Classroom Aids
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop
Tools, Equipment and Other Requirements
Grinder, Mixer, Pelletiser, Profi-Feeders, Weed Eradication Equipment, Dip Nnet or any other Harvesting Gear, Power Backup, PPE Bags, First Aid Box, Hand Nets and Cast Nets, Dip Nets, Hand gGoves, Boots, Headgear, Autoclave, Transport Vehicles with Water Storage Capacity

Module 4: Health, hygiene and safety procedures

Mapped to AGR/N4918 v2.0

Terminal Outcomes:

- Demonstrate various practices to maintain the upkeep of water body, tools and equipment.
- Describe how to adhere to personal hygiene and safety practices.
- Demonstrate ways to maintain the health of cultured organisms.

Duration: 30:00	**Duration: 60:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain various practices to protect the aquaculture farm and dykes from erosion and natural calamities. • Describe the process of protecting the cultured organisms from water/ air/ fomite borne diseases and contamination from handling. • Describe the process of identifying and eliminating common predators and preying organisms in the water body. • Explain the importance of fencing to protect the water body from external threats. • State measures that can be taken to prevent the escape of cultured organisms from the culture pond/ tank. • Explain the importance and process of conducting regular tests to maintain the recommended soil and water quality parameters in the water body. • Explain the importance of cleaning and decontaminating the nets, vessels, tools and equipment. • List basic safety checks to be undertaken before operating any tools and equipment. • Describe the common first aid procedures to be followed in case of emergencies. • Describe standard procedures to deal with accidents and emergencies.	• Show how to eliminate common predators and preying organisms from the water body. • Demonstrate the process of erecting fences to protect the water body from external threats. • Demonstrate the process of cleaning and decontaminating the nets, vessels, tools and equipment. • Demonstrate personal hygiene practices to be followed. • Demonstrate the correct way of washing hands using soap and water, and alcohol-based hand rubs. • Demonstrate the administration of first aid. • Show how to apply the necessary medicines/ chemicals as per prescription, maintaining the toxicity levels within the prescribed limits. • Demonstrate the process of using therapeutic practices for the speedy recovery of diseased organisms. • Demonstrate the process of disposing dead and diseased organisms.

• State various recommended prophylactic measures to prevent disease among cultured organisms. • Describe the process of examining the cultured organisms to detect the symptoms of parasites, pathogenic infections, phenotypic disorders, etc. • Describe the process of applying medicines/ chemicals while maintaining the toxicity levels within the prescribed limits. • Describe the process of identifying diseased organisms, quarantining and treating them. • Explain the importance and process of removing and disposing the dead and moribund organisms from the water body.	
Classroom Aids	
Computer, Projection Equipment, PowerPoint Presentation and Software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Personal Protective Equipment, Cleaning Equipment and Materials, Sanitizer, Soap, Mask	

Module 5: Employability Skills (90 hours)

Mapped to NOS DGT/VSQ/N0103 v1.0

Duration: 90:00

Key Learning Outcomes

Introduction to Employability Skills Duration: 3 Hours

After completing this programme, participants will be able to:

1. Outline the importance of Employability Skills for the current job market and future of work
2. List different learning and employability related GOI and private portals and their usage
3. Research and prepare a note on different industries, trends, required skills and the available opportunities

Constitutional values - Citizenship Duration: 1.5 Hours

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

Becoming a Professional in the 21st Century Duration: 5 Hours

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

Basic English Skills Duration: 10 Hours

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

Career Development & Goal Setting Duration: 4 Hours

12. Create a career development plan
13. Identify well-defined short- and long-term goals

Communication Skills Duration: 10 Hours

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

Diversity and Inclusion Duration: 2.5 Hours

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

Financial and Legal Literacy Duration: 10 Hours

20. Discuss various financial institutions, products, and services
21. Demonstrate how to conduct offline and online financial transactions, safely and securely and

check passbook/statement
22. Explain the common components of salary such as Basic, PF, Allowances (HRA, TA, DA, etc.), tax deductions
23. Calculate income and expenditure for budgeting
24. Discuss the legal rights, laws, and aids

Essential Digital Skills Duration: 20 Hours

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

Entrepreneurship Duration: 7 Hours

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

Customer Service Duration: 9 Hours

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

Getting ready for apprenticeship & Jobs Duration: 8 Hours

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

Module 6: Process of using biofloc technology to culture fish

Mapped to NOS AGR/N4959 v1.0

Terminal Outcomes:

- Describe the process of arranging the required resources.
- Demonstrate the process of setting up the biofloc tank.
- Describe the process of preparing for stocking the seeds.
- Describe the process of stocking the seeds.
- Describe the process of performing nutrition and disease management.
- Demonstrate the process of carrying out harvesting and post-harvest management.

Duration: 20:00	**Duration: 40:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the varieties of fish species suitable for biofloc aquaculture. • List various materials required for constructing a biofloc tank. • Explain the criteria for selecting a site for the construction of a biofloc tank such as adequate sunlight exposure and temperature. • Describe the process of designing and setting up the biofloc tank. • Describe the process of setting up the water outlets for removing the sludge and other solid waste from the biofloc tank. • Describe the process of installing the aerator pumps, air cylinder, air diffusers, air pipes, air controllers and ball valves. • Describe the process of treating the water with chlorine or other appropriate disinfectants before filling in the biofloc tank. • Explain various pre-stocking activities. • State necessary treatment to be applied to adjust the TDS and pH levels in the water. • Explain the use of probiotics and immune-stimulants. • Explain how to calculate the stocking density for the selected fish species and maintain it while stocking the fish seed	• Show how to prepare the design of the biofloc tank as per the quantity of fish to be cultured. • Demonstrate the process of setting up the biofloc tank using the recommended material and as per the prepared design. • Demonstrate the process of setting up water outlets for removing the sludge and other solid waste from the biofloc tank. • Demonstrate the process of installing the aerator pumps, air cylinder, air diffusers, air pipes, air controllers and ball valves. • Show how to treat the water with chlorine or an appropriate disinfectant before filling in the biofloc tank. • Demonstrate the process of applying the necessary treatment in the water such as raw salt to adjust the TDS and pH levels. • Demonstrate the process of applying the recommended probiotics and immuno-stimulants in the recommended quantity. • Show how to sanitise the fish seed stock before stocking it in the biofloc tank. • Demonstrate the process of implementing the necessary preventive measures as per the biofloc

in the biofloc tank. • Explain nutrition management of the fish in the biofloc tank, including the use of dietary supplements. • State various recommended practices to maintain the feed conversion ratio. • Explain various preventive measures to control disease and insects in the biofloc tank. • Explain the importance of carrying out a regular sampling of the fish in the tank to ensure its healthy growth. • Describe the process of quarantining and treating the diseased fish. • State maturity indicators of the fish stocked in the biofloc tank. • Describe the process of partial or complete harvesting of the fish and the recommended method of harvesting. • Describe the process of icing and storing the fish after being harvested and the required temperature and Relative Humidity (RH). • State appropriate packing material and process of packing the harvested fish. • State the appropriate mode of transport to ensure minimum stress and damage to the fish during transit. • Explain the importance of minimising manual handling of the fish.	technology to control disease and insects in the biofloc tank. • Demonstrate the process of carrying out a regular sampling of the fish in the tank to ensure its optimum growth and identify signs of disease and stress. • Show how to apply the recommended treatment to treat the diseased fish. • Demonstrate the process of harvesting the fish partially or completely using the recommended method. • Demonstrate the process of performing icing of the fish after being harvested. • Demonstrate how to pack the harvested fish in the appropriate container ensuring hygiene. • Prepare a sample record of fish raised and harvested using biofloc technology.
Classroom Aids:	
Training kit (Trainer guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Oxygen Cylinders, Ropes, Threads, Polypropylene tanks, Oxygen Tablets, Vitamin B 12 Tablets for removal of Stress during Transportation	

Module 7: Installation and use of the recirculating aquaculture system

Mapped to NOS AGR/N4960 v1.0

Terminal Outcomes:

- Describe the process of arranging the required resources.
- Demonstrate the process of setting up the RAS.
- Demonstrate the process of stocking seeds in the culture tank.
- Demonstrate the process of using and maintaining the RAS.

Duration: 20:00	**Duration: 40:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the varieties of fish species suitable for RAS. • List various resources required for setting up the RAS such as tank construction material, mechanical filter, bio-filter, water pump, oxygenation and aeration devices, etc. • Explain the importance of ensuring adequate availability of quality water and power supply to operate various RAS equipment. • Describe the process of constructing a circular/ rectangular/ oval fish culture tank and the appropriate material to construct the tank. • Describe the process of installing the relevant RAS equipment such as the oxygenator, aerator, water pump etc. • Explain the importance of using treated water in the culture tank and maintaining the recommended stocking density. • Describe the process of applying lime and other recommended treatment such as probiotics and immuno-stimulants in the culture tank. • Explain how to use various RAS equipment correctly. • Describe the process of sampling the water in the culture tank. • Describe the process of carrying out	• Demonstrate the process of setting up a circular/ rectangular/ oval fish culture tank of the required capacity according to the available space, the quantity of fish to be cultured and their water requirement. • Demonstrate the process of installing the mechanical filter at the fish culture tank to remove the solids such as faeces, sediment, uneaten feed from the water discharged from the tank. • Demonstrate the process of setting up the bio-filter to remove ammonia from water and convert it into nitrogen. • Show how to install the oxygenation and aeration devices to re-oxygenate and aerate the water. • Demonstrate the process of setting up the water pump to pump oxygenated and aerated water into the culture tank. • Demonstrate how to stock appropriate species of fish suitable for RAS. • Demonstrate the process of applying lime and other recommended treatment such as probiotics and immuno-stimulants in the recommended quantity in the tank. • Demonstrate the process of carrying outstripping in the culture tank with the use of an aerator to clear the

regular repair and maintenance of the RAS equipment.	accumulated gases. • Show how to clean the mesh screen installed in the tank. • Show how to clean/ flush the mechanical and biofilters regularly to prevent the accumulation of sludge and biological waste. • Demonstrate the process of carrying out minor repairs in a RAS through coordination with a technician for complex repair needs. • Prepare a sample record of repair and maintenance.
Classroom Aids:	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Siphoning Pipes, Portable DC Chargeable Battery Aerators, Small Ice Machine	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
10th Class		5	Inland Fishery Production and management	0		Aquaculture Technician/ Aquaculture Technical Supervisor with 5 Years' experience of working with registered Corporates or Not for Profit Organizations after 10th Pass
Diploma	Regular Diploma more than 15 months in fisheries	3	Inland Fishery Production and management	0		
B. Sc	Zoology	3	Inland Fishery Production and management	0		For the school Program minimum qualification of the Trainer should be Graduate(Fisheries Science/Industrial Fish & Fisheries/Zoology). Their Teaching experience will be considered industry experience
Graduate	Agriculture / Fisheries	2	Inland Fishery Production and management	0		
Bachelor of Fisheries Science/ B.Sc. (Industrial Fish & Fisheries)		0		0		

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role "**Aquaculture Technical Supervisor**", mapped to QP: "AGR/Q4903, v3.0", Minimum accepted score is 80%	Recommended that the Trainer is certified for theJob Role: "Trainer (Vet and Skills)", mapped to the Qualification Pack: "MEP/Q2601, v2.0". The minimum acceptedscore as per MEPSC guidelines is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Bachelor of Fisheries Science		4	In Fisheries Science/ Zoology/ Aquaculture/ Applied aquaculture/ Marine Biology or related streams and fields	0		Practical skills and knowledge required in raising fish and marine plants for food and recreational purposes
B. Tech	Fisheries Engineering and related streams	4	In Fisheries Science/ Zoology/ Aquaculture/ Applied aquaculture/ Marine Biology or related streams and fields	0		Practical skills and knowledge required in raising fish and marine plants for food and recreational purposes
Graduation	Fisheries and related streams	5	In Fisheries Science/ Zoology/ Aquaculture/ Applied aquaculture/ Marine Biology or related streams and fields	0		Practical skills and knowledge required in raising fish and marine plants for food and recreational purposes
M. Tech	Aqua cultural Engineering/ Fisheries engineering and related streams	2	In Fisheries Science/ Zoology/ Aquaculture/ Applied aquaculture/ Marine Biology or related streams and fields	0		Practical skills and knowledge required in raising fish and marine plants for food and recreational purposes
Master of Fisheries Science		2	In Fisheries Science/ Zoology/ Aquaculture/ Applied aquaculture/ Marine Biology or related streams and fields	0		Practical skills and knowledge required in raising fish and marine plants for food and recreational purposes
M Sc	Fisheries and related streams	2	In Fisheries Science/ Zoology/ Aquaculture/ Applied aquaculture/ Marine Biology or related streams and fields	0		Practical skills and knowledge required in raising fish and marine plants for food and recreational purposes

PhD	Fisheries Science and related streams	1	In Fisheries Science/ Zoology/ Aquaculture/ Applied aquaculture/ Marine Biology or related streams and fields	0		Practical skills and knowledge required in raising fish and marine plants for food and recreational purposes

Assessor Certification	
Domain Certification	**Platform Certification**
"**Aquaculture Technical Supervisor**", "AGR/Q4903, v3.0", Minimum accepted score is 80%	Certified for the Job Role: "Assessor (Vet and Skills)", mapped to theQualification Pack: "MEP/Q2701, v2.0", with a minimum score of 80%.

Assessment Strategy

Assessment System Overview

In Agriculture Sector it is of ultimate importance that individuals dealing with crop production or livestock have the requisite knowledge and competencies to undertake the task. Based on the Assessment Criteria, SSC in association with 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 the ground through qualified and ToA certified assessors.

An individual must have adequate knowledge and skills to perform a specific task; weightage for different aspects of the assessment is given as follows:

- Multiple Choice Questions: 20%-30%, depending on the specific QP
- Viva: 20%
- Practical: 50% - 60% (Involves demonstrations of applications and presentations of procedures/tasks and other components)
- Assessment will be carried out by certified assessors through empanelled assessment partners. Based on the results of the assessment; ASCI will certify the learners/candidates

Testing Environment

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

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

- Multilingual assessments (ASCI is conducting the assessments in 13 + languages pan India)
- Rubric driven assessments in Practical/Viva sections and responses recorded accordingly
- All responses, data, records and feedback stored digitally on the cloud
- Advanced auto-proctoring features – photographs, time-stamp, geographic-tagging, toggle- screen/copy-paste disabled, etc.
- Android-based monitoring system
- End to end process from allocation of a batch to final result upload, there is no manual intervention

- Assessment will normally be fixed for a day after the end date of the training / within 7 days of completion of training.
- Assessment will be conducted at the training venue
- The room where assessment is conducted will be set with proper seating arrangements with enough space to curb copying or other unethical activities
- Question bank of theory and practice will be prepared by ASCI /assessment agency and approved ASCI. Only from approved Question Bank assessment agency will prepare the question paper. Theory testing will include multiple-choice questions, pictorial questions, etc. which will test the trainee on his theoretical knowledge of the subject.
- The theory, practical and viva assessments will be carried out on the same day. In case of a greater number of candidates, the number of assessors and venue facilitation be increased and facilitated

Assessment			
Assessment Type	**Formative or Summative**	**Strategies**	**Examples**
Theory	Summative	MCQ/Written exam	Knowledge of facts related to the job role and functions. Understanding of principles and concepts related to the job role and functions
Practical	Summative	Structured tasks/Demonstration	Practical application /Demonstration /Application tasks
Viva	Summative	Questioning and Probing	Mock interviews on the usability of job roles/advantages /importance of adherence to procedures. Viva will be used to gauge trainee's confidence and correct knowledge in handling the job situation

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

Assessment Quality Assurance framework

Assessment Framework and Design:

Based on the Assessment Criteria, SSC in association with AAs will define the test structure for the given roles to cover the required skills and competencies. ASCI offer a bouquet of tools for multi-dimensional evaluation of candidates covering language, cognitive skills, behavioural traits and domain knowledge.

Theoretical Knowledge - Item constructs and types are determined by a theoretical understanding of the testing objectives and published research about the item types and constructs that have shown statistical validity towards measuring the construct. Test item types that have been reported to be coachable are not included. Based on these, items are developed by domain experts. They are provided with comprehensive guidelines of the testing objectives of each question and other quality measures.

Type – Questions based on Knowledge Required, Case-based practical scenario questions and automated simulation-based questions.

Practical Skills - The practical assessments are developed taking into consideration two aspects: what practical tasks is the candidate expected to perform on the job and what aspects of the job cannot be judged through theoretical assessments. The candidates shall be asked to perform either an entire task or a set of subtasks depending on the nature of the job role

Type – Standardized rubrics for evaluation against a set of tasks in a demo/practical task

Viva Voce - Those practical tasks which cannot be performed due to time or resource constraints are evaluated through the viva mode. Practical tasks are backed up with Viva for thorough assessment and complete evaluation

Type – Procedural questions, dos and don'ts, subjective questions to check the understanding of practical tasks.

The assessor has to go through an orientation program organized by the Assessment Agency. The training would give an overview to the assessors on the overall framework of QP evaluation. The assessor shall be given a NOS and PC level overview of each QP as applicable. The overall structure of assessment and objectivity of the marking scheme will be explained to them. The giving of marks will be driven by an objective framework that will maintain the standardisation of the marking scheme.

Type of Evidence and Evidence Gathering Protocol:

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

- Geo Tagging to track ongoing assessment
- AA's coordinator emails the list of documents and evidence (photos and videos) to the assessor one day before the assessment. The list is mentioned below:
    - Signed Attendance sheet
    - Assessor feedback sheet
    - Candidate feedback sheet

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

Methods of Validation

- Morning Check (Pre-Assessment): Backend team of AA calls and confirms assessor/technical SPOC event status. Assessor/Technical SPOC are instructed to reach the centre on time by 9:30 AM / as decided with TC and delay should be highlighted to the Training Partner in advance.
- Video Calls: Random video calls are made to the technical SPOC/assessor so as to keep a check on assessment quality and ensure assessment is carried out in a fair and transparent manner
- Aadhar verification of candidates
- Evening Check (Post Assessment): Calls are made to the ground team to ensure the event is over by what time and the documentation is done properly or not.
- TP Calling: To keep a check on malpractices, an independent audit team calls the TP on a recorded line to take confirmation if there was any malpractice activity observed in the assessment on part of the AA/SSC team. If calls are not connected, an email is sent to TP SPOC for taking their confirmation
- Video and Picture Evidence: Backend team collects video and pictures for assessment on a real-time basis and highlights any issue such as students sitting idle/ trainer helping the candidates during the assessment.
- Surprise Visit: Time to time SSC/AA Audit team can visit the assessment location and conduct a surprise audit for the assessment carried out by the ground team.
- Geo Tagging: On the day of the assessment, each technical SPOC is required to login into our internal app which is Geotagged. Any deviation with the centre address needs to be highlighted to the assessment team on a real-time basis.

Method for assessment documentation, archiving, and Access:

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

be generated.

- Maker Checker concept: One person prepares the results and another audit result which is internally approved by AA at first and then gets vetted at the end of SSC
- All softcopies of documents are received from the on-ground tech team over email. The same is downloaded by our internal backend team and saved in Repository. The repository consists of scheme-wise folders. These scheme-wise folders have two job role-specific folders. These specific folders have Year wise and Month wise folders where all documents are saved in Batch specific folders. All Hard copies are filed and stored in the storeroom.

Result Review & Recheck Mechanism –

- Time-stamped assessment logs
- Answer/Endorsement sheets for each candidate
- Attendance Sheet
- Feedback Forms: Assessor feedback form, Candidate feedback form, TP feedback form
- The results for each of the candidate shall be stored and available for review (retained for 5 years/ till the conclusion of the project or scheme)

References

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
AGR	Agriculture
NOS	National Occupational Standard (s)
NSQF	National Skills Qualifications Framework
OJT	On-the-job Training
QP	Qualifications Pack
PwD	People with Disability
PPE	Personal Protective Equipment