

# Model Curriculum

## Ornamental Fish Technician

SECTOR: AGRICULTURE & ALLIED  
SUB-SECTOR: FISHERIES  
OCCUPATION: AQUACULTURE  
REF ID: AGR/Q4910, V1.0  
NSQF LEVEL: 4



**Certificate**

**CURRICULUM COMPLIANCE TO  
QUALIFICATION PACK – NATIONAL OCCUPATIONAL  
STANDARDS**

is hereby issued by the

**AGRICULTURE SKILL COUNCIL OF INDIA**

for the

**MODEL CURRICULUM**

Complying to National Occupational Standards of  
Job Role/ Qualification Pack: **'Ornamental Fish Technician'** QP No. **'AGR/Q 4920 NSQF Level 4'**

Date of Issuance: February 15<sup>th</sup>, 2017

Valid up to: March 31<sup>st</sup>, 2019

\* Valid up to the next review date of the Qualification Pack

  
S. S. Arora  
Authorised Signatory  
(Agriculture Skill Council of India)

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# Ornamental Fish Technician

## CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Ornamental Fish Technician”, in the “Agriculture & Allied” Sector/Industry and aims at building the following key competencies amongst the learner

<b>Program Name</b>	Aquaculture Technician		
<b>Qualification Pack Name &amp; Reference ID.</b>	AGR/Q4910, v1.0		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	
<b>Pre-requisites to Training</b>	Class 8, preferably		
<b>Training Outcomes</b>	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> <li>• <b>Understand and select different ornamental species of commercial importance :</b></li> <li>• <b>Perform tank fabrication and pond preparation activities:</b> setting of different types of tanks viz; FRP, silpaulin tank, RCC tank etc, installation of re circulatory systems, glass tank fabrication</li> <li>• <b>Understand feeding regime and live feed preparatory methods :</b> Proper feeding at time intervals, procurement of indigenous feed materials, identification of feeding cycles, live feed culture</li> <li>• <b>Perform breeding, culture and seed production :</b> Fish breeding, health monitoring of species regularly, maintenance of water quality, broodstock development, potential disease identification and prophylactic methods, quarantine protocols, biosecurity protocols, feed formulation, aeration, harvesting, packaging and conditioning for transportation, determining dosage of medicines and disinfectants, substrate selection depending on breeding pattern</li> <li>• <b>Regulation of safety, hygiene and sanitation practices:</b> prevention of species escape, identifying common preys and predators, restricted entry, protective clothing and gear, fencing arrangement, regular inspection of pathogenic infections, and disease outbreaks</li> </ul>		

This course encompasses 4 out of 4 National Occupational Standards (NOS) of “Ornamental Fish Technician” Qualification Pack issued by “Agriculture Skill Council of India”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p><b>Introduction</b></p> <p><b>Theory Duration</b> (hh:mm) 05:00</p> <p><b>Practical Duration</b> (hh:mm) 00:00</p> <p><b>Corresponding NOS Code</b> Bridge Module</p>	<ul style="list-style-type: none"> <li>• Understand General Discipline in the class room (Do's &amp; Don'ts)</li> <li>• Study the Scope &amp; importance of ornamental fish species and seed production in India</li> <li>• Understand the Role of an ornamental fish technician and the progression pathways</li> <li>• Identify the ornamental fish broodstock and manage the broodstock for breeding</li> </ul>	Laptop, white board, marker, projector
2	<p><b>Perform tank fabrication and pond preparation activities</b></p> <p><b>Theory Duration</b> (hh:mm) 25:00</p> <p><b>Practical Duration</b> (hh:mm) 25:00</p> <p><b>Corresponding NOS Code</b> AGR / N4936</p>	<ul style="list-style-type: none"> <li>• Knowledge of setting of various types of tanks to be used in ornamental fish breeding viz; FRP, silpaulin tank, RCC tank etc</li> <li>• Technical knowledge and understanding of re circulatory system installation for water exchange</li> <li>• Fabricate glass tanks</li> </ul>	Laptop, white board, marker, projector, Audio-visual aids, Water pump, Power backup, inch tape, , torch, Gloves, Oxygen cylinder, Plastic bag, Plastic tank, glass tanks,
3	<p><b>Carryout preparation of feed and live feed culture</b></p> <p><b>Theory Duration</b> (hh:mm) 25:00</p> <p><b>Practical Duration</b> (hh:mm) 25:00</p> <p><b>Corresponding NOS Code</b> AGR/N4937</p>	<ul style="list-style-type: none"> <li>• Feed the species at regular time intervals</li> <li>• Able to procure indigenous feed materials in order to make up the production cost</li> <li>• Identify feeding cycles</li> <li>• Identify live feed organisms</li> <li>• Proper carrying out culture operations of live feed organisms</li> </ul>	Laptop, white board, marker, projector, Audio-visual aids, Power backup, feeding trays, tanks, buckets
4	<p><b>Carry out breeding, seed production and culture of ornamental fish</b></p>	<ul style="list-style-type: none"> <li>• Maintain water quality and regular check on water parameters</li> <li>• Handle and upkeep of mature broodstock</li> <li>• Perform water exchange, washing and</li> </ul>	Grinder, mixer, pelletizer, soil and water testing kit, , nets, aerator,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<b>Theory Duration</b> (hh:mm) 25:00  <b>Practical Duration</b> (hh:mm) 25:00  <b>Corresponding NOS Code</b> AGR/N4938	disinfection without disturbing the broodstock <ul style="list-style-type: none"> <li>• Formulate feed</li> <li>• Monitor the health of species</li> <li>• Identify potential diseases and prophylactic methods</li> <li>• Operate aerator</li> <li>• Selection of substrate depending on the breeding pattern</li> <li>• Know the fish behavior at different life stages</li> <li>• Feed optimal</li> <li>• Determine the proper dosage of medicines and disinfectants</li> <li>• To harvest, package and condition the species for transportation</li> <li>• Keep a check on quarantine and biosecurity protocols</li> </ul>	chlorine, iodine, , Water Pump, hypochlorite solution, surgical knife, Syringe, Tray, Power backup, spawning cone, gray slates, breeding trap, breeding holding box, tank divider, tank heaters, reverse osmosis filters, deionizers, aquarium canopies and hoods, egg crates, floating plants, marbles, PVC pipes, sponge filter, spawning mop, water pumps, aeration stones, methylene blue, copper sulphate, hand nets, UV light disinfectant equipment, oxygen cylinder, pH meter
5	<b>Ensure safety, hygiene and sanitation practices for culture operations</b>  <b>Theory Duration</b> (hh:mm) 20:00  <b>Practical Duration</b> (hh:mm) 25:00  <b>Corresponding NOS Code</b> AGR/N4918	<ul style="list-style-type: none"> <li>• To prevent species escape</li> <li>• identifying common preys and predators</li> <li>• restricted entry</li> <li>• protective clothing and gear</li> <li>• fencing arrangement</li> <li>• regular inspection of pathogenic infections and disease outbreaks</li> </ul>	Laptop, white board, marker, projector, grinder, mixer, pelletizer, oxygen cylinder, soil and water testing kit, Tray, Bucket, Torch, Plastic bags, Weighing machine, Gloves, gum boots, safety shoes etc
	<b>Total Duration:</b>  <b>Theory Duration</b> (hh:mm) <b>100:00</b>  <b>Practical Duration</b> (hh:mm) <b>100:00</b>	<b>Unique Equipment Required:</b> Laptop, white board, marker, projector, Audio-visual aids, Water pump, Air or Oxygen diffusers, Aerators, Mechanical filters - like leaf filters, Tubes, Power backup, Grinder, Mixer, Pelletiser, Profi-Feeders, weed eradication equipments, Dip net or any other harvesting gear, safety shoes, goggles, first aid box, Surgical knife, Soil and water testing kit, feeding trays, Bucket, Torch, Gloves, spawning cone, spawning mop, gray slates, aquarium heaters, tank dividers, egg, aquarium chillers, canopies and hoods, marbles, UV disinfectant	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		equipment, reverse osmosis filters, aeration stones, PVC pipe, sponge filter, oxygen cylinder, pH meter	

Grand Total Course Duration: **200 Hours, 0 Minutes**

*(This syllabus/ curriculum has been approved by [Agriculture Skill Council of India](#))*

## Trainer Prerequisites for Job role: “Ornamental Fish Technician” mapped to Qualification Pack: “AGR/Q4910, v1.0”

Sr. No.	Area	Details
1	<b>Description</b>	Trainer is responsible for educating the trainees – Various breeding, seed production and rearing of seeds to adult size in tanks or ponds of various fish of domestic and export value.
2	<b>Personal Attributes</b>	Trainer should be Subject Matter Expert. He/ she should have good communication, leadership, observation and practical oriented skills.
3	<b>Minimum Educational Qualifications</b>	Diploma in Fisheries, Preferably
4a	<b>Domain Certification</b>	Certified for Job Role: “ <u>Ornamental Fish Technician</u> ” mapped to QP: “ <u>AGR/Q4910, v1.0</u> ”. Minimum accepted score is 80%.
4b	<b>Platform Certification</b>	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q0102”. Minimum accepted % as per respective SSC guidelines is 80%.
5	<b>Experience</b>	<ul style="list-style-type: none"> <li>• M. F. Sc</li> <li>• B. F. Sc</li> <li>• B. Sc Agriculture/Zoology with 2 years of relevant work experience</li> <li>• Any graduate with 3 years of relevant work experience</li> <li>• Diploma in fisheries with 3 years of relevant work experience</li> <li>• 10+2 with 5 years of relevant work experience</li> </ul>



## Annexure: Assessment Criteria

<b>Assessment Criteria</b>	
<b>Job Role</b>	<b>Ornamental Fish Technician</b>
<b>Qualification Pack</b>	<b>AGR/Q4910, v1.0</b>
<b>Sector Skill Council</b>	<b>Agriculture</b>

Sr. No.	Guidelines for Assessment
1	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2	The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre(as per assessment criteria below)
4	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5	To pass the Qualification Pack, every trainee should score a minimum of 70% in aggregate
6	In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

Assessment outcomes	Assessment criteria for outcomes	Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
<b>1. AGR/N4936 Perform tank and pond preparation activities</b>	PC1. select the suitable types of tanks and ponds	<b>100</b>	17	5	12
	<ul style="list-style-type: none"> <li>FRP</li> </ul>				
	<ul style="list-style-type: none"> <li>silpaulin tank</li> </ul>				
	<ul style="list-style-type: none"> <li>RCC tank</li> </ul>				
	PC2. fill the tanks/ponds with aged freshwater, or sea water depending on the species to be reared				
	PC3. provide tanks/ponds with appropriate lifesaving equipments (air pumps, aerators, filters)and aquatic ornamental plants				
	PC4. install re circulatory systems, if required				
	PC5. select the suitable species of ornamental fish, freshwater or marine based on the water quality				
	PC6. fabricate glass tanks				
	<b>100</b>	<b>30</b>	<b>70</b>		
<b>2. AGR/N4937 Carry out preparation of feed and live feed culture</b>	PC1. identify nutritional and feed requirements of different species of fish	<b>100</b>	11	4	7
	PC2. calculate ration requirement for different stages and species				
	PC3. identify feeding cycles and routine				
	PC4. select materials that will comprise the feed				
	PC5. compound different feed as per requirement				
	PC6. culture common live feed organisms				
	PC7. use indigenous feed material for preparation of feed				
	PC8. identify the live feed suitable for fish				
	PC9. culture the live feed according to suitable methods and by adhering to required processes				

			100	30	70
<b>3. AGR/N4938 Carry out breeding, seed production and culture of ornamental fish</b>	PC1. identify the appropriate environmental requirement for	<b>100</b>	4	1	3
	PC2. monitor water quality on a regular basis		4	1	3
	PC3. identify potential diseases and their prophylaxis		4	1	3
	PC4. undertake quarantine protocols		4	1	3
	PC5. identify the sexual dimorphism and life history traits		4	2	2
	PC6. identify feeding behavior of the various species of fish		4	2	2
	PC7. undertake brood stock development		3	1	2
	PC8. use appropriate method for breeding		4	1	3
	PC9. use suitable substrates depending on		4	1	3
	PC10. use proper live feeds and formulations		4	1	3
	PC11. provide required aeration and maintain optimum water quality parameters		4	1	3
	PC12. observe and monitor the breeding process		4	1	3
	PC13. rear the juvenile fish to the marketable size		3	1	2
	PC14. determine health parameters to judge the condition of organisms in culture system		4	1	3
	PC15. determine how to regulate the feed and fertilizer inputs for achieving desired production		4	2	2
	PC16. determine the correct dose of medicines / disinfectants to cure diseases		4	1	3
	PC17. separate the diseased fish from the healthy fish and put them in a hospital tank, in case of a disease outbreak		4	1	3
	PC18. diagnose the problem/disease and treat appropriately		4	1	3
	PC19. monitor the condition of fish in the hospital tank for signs of improvement		4	2	2
	PC20. undertake necessary biosecurity protocols for disease prevention		4	1	3
	PC21. carry out nutritional prophylactics before harvesting		4	1	3

	PC22. use appropriate tools and equipment		4	1	3
	PC23. reduce the level of water in the water body before harvesting		4	1	3
	PC24. condition the fish before packing		3	1	2
	PC25. starve the fish for 24 hours before packing		3	1	2
	PC26. use appropriate packing material for transport based on the number and size of the fish		4	1	3
			<b>100</b>	<b>30</b>	<b>70</b>
<b>4.AGR/N4918 Ensure safety, hygiene and sanitation practices for culture operations</b>	PC1. ensure suitable measures for protection of from natural calamities such as flood, protect dyke from erosion or break	<b>100</b>	5	2	3
	PC2. ensure protection and prevent escape of the cultured organisms		5	2	3
	PC3. identify common predators and preying organisms in water bodies		4	1	3
	PC4. apply suitable methods such as fencing to keep away predators in water bodies to protect fish culture		5	1	4
	PC5. restrict entry of unauthorized persons into the premises		5	1	4
	PC6. be fully aware of the dosage, toxicity level and method of application of chemicals / medicines used for fish culture		5	1	4
	PC7. ensure all chemicals are adequately labelled and stored safely		4	1	3
	PC8. identify a quarantine area and implement protocols of quarantine		5	1	4
	PC9. be aware of the possibilities of bacterial (water borne, air borne, formite borne )and other contamination from human handling		5	2	3
	PC10. apply effective systems and routines to ensure healthy and hygienic conditions during all stages of fish culture including transportation and marketing		5	2	3
	PC11. ensure that the fish culture premises are constantly monitored /inspected for breaches in the protection provided by health and hygiene measures		5	2	3

	PC12. undertake basic safety checks before operation of any equipments		4	1	3
	PC13. wear protective clothing and gear as and when required and ensure adherence to safety guidelines		5	1	4
	PC14. report potential hazards to the supervisor immediately		4	1	3
	PC15. follow standard procedures to deal with accidents and emergency situations		5	2	3
	PC16. use first aid kit as and when required and provide appropriate treatment in case of any injuries		5	1	4
	PC17. ensure maintenance of suitable soil and water quality parameters at all times with frequent tests		5	2	3
	PC18. ensure specified feed is provided to organisms at regular intervals and excess feeding is avoided		5	2	3
	PC19. carry out regular inspection of organisms for possible presence of parasites, pathogenic infections, any phenotypic disorder, spot, etc. which are usually the signs of ailments or disease outbreak		5	2	3
	PC20. ensure all nets, utensils and vessels used are decontaminated and clean		4	1	3
	PC21. implement effective security measures for prevention of theft /sabotage		5	1	4
			<b>100</b>	<b>30</b>	<b>70</b>
	<b>TOTAL</b>		<b>400</b>	<b>120</b>	<b>280</b>
	<b>Percentage Weightage:</b>			<b>30%</b>	<b>70%</b>
	<b>Minimum Pass% to qualify (aggregate):</b>				<b>70%</b>