

Model Curriculum

Aquarium Technician

SECTOR: AGRICULTURE & ALLIED
SUB-SECTOR: FISHERIES
OCCUPATION: ASSISTANCE (FISHERIES)
REF ID: AGR/Q5108, 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: 'Aquarium Technician' QP No. 'AGR/ Q5108 NSQF Level 4'

Date of Issuance: November 30th, 2017

Valid up to: March 31st, 2021

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



Authorised Signatory
(Agriculture Skill Council of India)

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Aquarium Technician

CURRICULUM / SYLLABUS

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

Program Name	Aquarium Technician		
Qualification Pack Name & Reference ID.	AGR/Q5108, v1.0		
Version No.	1.0	Version Update Date	
Pre-requisites to Training	Class 5		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Identify fresh water and marine ornamental fishes both indigenous and exotic. • Identify other organisms in an aquarium other than fishes like corals, crustaceans, molluscs and their maintenance in an aquarium. • Identify the equipment and protocols of aquarium keeping • Set up and manage freshwater aquarium • Set up and maintain Marine Aquarium • Set up Garden ponds and choose suitable fishes for the ponds • Ensure proper water quality management of fish in marine, fresh water aquariums and garden ponds • Ensure proper health management of fish in freshwater aquarium and garden pond • Follow biosecurity protocols and ensure safety, hygiene in marine and freshwater aquariums (including garden ponds) • Maintain personal hygiene and safety 		

This course encompasses 3 out of 3 National Occupational Standards (NOS) of “Aquarium Technician” Qualification Pack issued by “Agriculture Skill Council of India”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	Introduction Theory Duration (hh:mm) 5:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code Bridge Module	<ul style="list-style-type: none"> Understand general discipline in the class room (Do's & Don'ts) Study the scope & importance of freshwater ornamental fishes of India Understand the Role of Aquarium Technician and the progression pathways Identify different freshwater/marine ornamental finfish/shellfish. Understand the equipment required for setting up of the aquarium. Distinguish between freshwater aquarium, marine aquarium, and garden ponds. 	Laptop, white board, marker, projector
2	Set up and manage marine aquarium Theory Duration (hh:mm) 25:00 Practical Duration (hh:mm) 40:00 Corresponding NOS Code AGR/Q5115	<ul style="list-style-type: none"> Identify freshwater and marine ornamental fishes both indigenous and exotic. Identify other organisms in an aquarium other than fishes like corals, crustaceans, molluscs and their maintenance in an aquarium. Identify the other components of the aquarium like aerators, filters, protein skimmers, live and artificial ornamental plants etc. Identify the equipment and protocols of aquarium keeping. Source all the components of the marine aquarium required Set up the complete aquarium structure with air inlets, lighting, filtration Maintain the aquarium in a sustainable condition with proper water quality and functioning of the filters Diagnose the problem/disease and treat to fishes if any. Monitor the condition of fish in the hospital tank and use appropriate medicines for improvement. 	Laptop, projector, white board, duster, audio visual aids, Water pump, Air or Oxygen diffusers, Aerators, Mechanical filters - like leaf filters, Chemical and biological filters, protein skimmer, UV steriliser, Water analysis meters, pH meter, salinometer. Tubes, Power backup, PVC pipes. Glass tanks, silicon glue, sea water, fishes, live coral etc, scissors, water testing kit, buckets, forceps, dropper, tissue paper, syringes, simple microscope, , Power backup, medicines, Hospital tanks, additional glass tanks, medicines. siphoning pipes, aeration pipes, Simple microscope.
3	Set up and manage freshwater aquarium	<ul style="list-style-type: none"> Set up the complete aquarium structure with air inlets, lighting, plants 	Laptop, white board, marker, projector,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<p>(including garden ponds)</p> <p>Theory Duration (hh:mm) 20:00</p> <p>Practical Duration (hh:mm) 40:00</p> <p>Corresponding NOS Code AGR/Q5116</p>	<p>and filtration system</p> <ul style="list-style-type: none"> • Ensure proper working of filters for removing waste matter • Maintain water quality of the aquarium • Monitor for any undesirable growth, parasites or anything that may threaten the balance of the aquarium • Operate and set up various timers for operating lighting and heating systems, if any. • Ensure proper health and biosecurity of the system • Diagnose the problem/disease and treat appropriately • Monitor the condition of fish in the hospital tank for signs of improvement 	<p>Audio-visual aids, Water pump, Air or Oxygen diffusers, Aerators, Mechanical filters - like leaf filters, Chemical and biological filters, protein skimmer, UV steriliser, Water analysis meters, pH meter, salinometer. Tubes, Power backup, PVC pipes. Glass tanks, silicon glue, sea water, fishes, live coral etc, scissors, water testing kit, buckets, forceps, dropper, tissue paper, syringes, simple microscope, Power backup, medicines, Hospital tanks, additional glass tanks, siphoning pipes, aeration pipes, Simple microscope</p>
4	<p>Ensure safety, hygiene and sanitation practices in aquascaping</p> <p>Theory Duration (hh:mm) 20:00</p> <p>Practical Duration (hh:mm) 40:00</p> <p>Corresponding NOS Code AGR/N5117</p>	<ul style="list-style-type: none"> • Plan the aquarium set-up of structure in accordance with the safety guidelines • Quarantine and condition any new fish before introducing in tanks for better biosecurity • Ensure maturation of the tanks before introducing new fishes to prevent new tanks syndrome • Conduct tests to check water quality – pH, ammonium, nitrite levels and salinity • Conduct regular inspection of the entire system • Undertake proper safety & hygiene precautions to prevent any contamination/ mishap • Administer first aid when required • Follow standard procedures to deal with accidents and emergency situations • Follow safety and hygiene protocols 	<p>White board, projector, marker, duster, First Aid Box, Fire extinguisher, disinfectants, Hand gloves, face mask,</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Total Duration: Theory Duration (hh:mm) 70:00 Practical Duration (hh:mm) 130:00	Unique Equipment Required: Laptop, white board, marker, projector, Audio-visual aids, Water pump, Air or Oxygen diffusers, Aerators, Mechanical filters, Tubes, Chemical and biological filters, UV sterilizers, scissors, water testing kit, buckets, forceps, dropper, tissue paper, syringes, simple microscope, hand lens, Power backup, medicines, Hospital tanks, additional glass tanks Dip net, hand nets or any other harvesting gear, first aid box, hand gloves, syringes, chemicals storage bottles, tissue paper, oxygen cylinders, oxygen tablets, vitamin B12 tablets, erythromycin capsules, polypropelene tanks, ropes, threads, Water analysis meters, salinometer, siphoning pipes, aeration pipes, pH meter, medicines, Hospital tanks, additional glass tanks, quarantine tanks, Motors for garden pond, siphoning pipes, aeration pipes etc.	

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: “Aquarium Technician” mapped to Qualification Pack: “AGR/Q5108, v1.0”

Sr. No.	Area	Details
1	Description	Trainer is responsible for educating the trainees – identifying the fishes suitable for aquariums both for marine and fresh water and their appropriate management practices for setting up of aquariums, water quality management, disease management, maintenance and their biosecurity protocols .
2	Personal Attributes	Trainer should be a Subject Matter Expert. He/ she should have good communication, leadership, observation and practical oriented skills.
3	Minimum Educational Qualifications	Diploma in Fisheries
4a	Domain Certification	Certified for Job Role: “ <u>Aquarium Technician</u> ” mapped to QP: “ <u>AGR/Q5108, v1.0</u> ”. Minimum accepted score is 80%.
4b	Platform Certification	Certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q0102”. Minimum accepted % as per respective SSC guidelines is 80%.
5	Experience	<ul style="list-style-type: none"> • B . F. Sc/ M.F.Sc./ M.Sc. in Marine Biology/ Industrial Fisheries/ Mariculture • B. Sc (Fisheries)/M.Sc. Zoology with 1 year of relevant work experience • B. Sc. Zoology with 2 years of relevant work experience • Diploma (more than 12 months) in fisheries with 3 years of relevant work experience

Annexure: Assessment Criteria

Job Role	Aquarium Technician
Qualification Pack	AGR/Q5108, v1.0
Sector Skill Council	Agriculture Skill Council of India

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 center (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
1. AGR/N5115: Set up and manage marine aquarium	PC1. source all the components of the marine reef system required	100	6	2	4
	PC2. condition and acclimatize each component of the reef system like sand, rocks, before introducing fish		6	2	4
	PC3. set up the complete aquarium structure with air inlets, lighting, filtration		6	1	5
	PC4. ensure the method, frequency and percentage of water exchange within the reef system is adhered to		6	2	4
	PC5. ensure proper working of protein skimmers for removing waste matter		5	2	3
	PC6. maintain the reef system in a sustainable condition		6	2	4
	PC7. monitor the reef system for any undesirable growth, parasites or any substance that may threaten the balance of the reef system		6	1	5
	PC8. test the pH, ammonia and nitrite levels, and salinity, regularly		6	2	4
	PC9. operate and set up various timers for operating lighting, filtration pumps and heating if any		6	1	5
	PC10. introduce organisms that help clean the reef system by removing ectoparasites		6	2	4
	PC11. monitor and identify symptoms of common illnesses and ailments and take timely corrective action		6	2	4
	PC12. ensure provision of nutritionally balanced fish feed, optimal feeding method and frequency		6	2	4
	PC13. estimate the time taken to establish a reef system, sustain it and plan accordingly		6	2	4
	PC14. check for diseased or dying fish, if any, and isolate them		6	2	4
	PC15. separate the diseased fish from the healthy fish and put them in a hospital tank, in case of disease outbreak		6	1	5
	PC16. diagnose the problem/disease and treat appropriately		5	2	3
	PC17. monitor the condition of fish in the hospital tank for signs of improvement		6	2	4
		100	30	70	

2.AGR/N5116: Set up and manage freshwater aquarium (including garden ponds)	PC1. source all the components required for the aquarium as per the specifications	100	6	2	4
	PC2. clean each piece of equipment, acclimatize and prepare it for immersion into the aquarium		6	2	4
	PC3. Set up the complete aquarium structure with air inlets, lighting, filtration system		6	2	4
	PC4. follow the method, frequency and percentage of water exchange within aquarium,		6	2	4
	PC5. ensure proper working of pick-up filters for removing waste matter		6	2	4
	PC6. monitor for any undesirable growth, parasites or anything that may threaten the balance of the aquarium		7	2	5
	PC7. use water conditioners to remove traces of chlorine etc. from the water to be used in the aquariums		7	2	5
	PC8. operate and set up various timers for operating lighting and heating systems, if any		6	2	4
	PC9. ensure filtration is being done on a continuous basis		6	1	5
	PC10. introduce organisms that will help clean the aquarium of waste residues		6	2	4
	PC11. monitor and identify symptoms of common illnesses and ailments and take timely corrective action		6	2	4
	PC12. quarantine the newly purchased fish to aquarium conditions before it is introduced to aquarium		7	2	5
	PC13. check for diseased or dying fish		6	1	5
	PC14. separate the diseased fish from the healthy fish and put them in a hospital tank , in case of disease outbreak		7	2	5
	PC15. diagnose the problem/disease and treat appropriately		6	2	4
	PC16. monitor the condition of fish in the hospital tank for signs of improvement		6	2	4
			100	30	70
3. AGR/N5117 Ensure safety, hygiene and sanitation practices in aquascaping	PC1. plan and set up the structure of marine aquarium system and its electrical connections keeping in mind guidelines of safety	100	6	1	5
	PC2. ensure each artefact planned for the marine or freshwater aquarium system is acclimatized and cured to specifications that support and sustain the ecosystem		6	2	4
	PC3. ensure the proper introduction of artefacts, at appropriate times so the ecosystem gradually acclimatizes to each of them		6	2	4

PC4.	conduct tests to check water quality – pH, ammonium, nitrite levels and salinity		5	1	4
PC5.	exchange appropriate percentages of the water at regular intervals		5	2	3
PC6.	ensure routine cleaning and inspections of the entire system		5	1	4
PC7.	monitor the accretion of waste at the bottom of tank and establish a routine to remove them		5	2	3
PC8.	ensure all filters and fittings camouflaged by artefacts are routinely checked and kept in good working order		6	2	4
PC9.	establish a feeding routine and choice of feed for all types of aquatic life in the aquarium		5	2	3
PC10.	ensure the introduction of beneficial organisms that help maintain the sustainability of the aquarium		5	2	3
PC11.	quarantine and condition any new fish before introducing in tanks for better biosecurity		5	1	4
PC12.	ensure maturation of the tanks before introducing new fishes to prevent new tanks syndrome		6	2	4
PC13.	be aware of the possibilities of bacterial and other contamination from human handling of fish		5	2	3
PC14.	undertake basic safety checks before operation of any equipments		5	1	4
PC15.	wear protective clothing and gear and ensure adherence to safety guidelines especially while cleaning tanks		5	1	4
PC16.	exercise caution when handling electrical/lighting equipment in the tank		5	1	4
PC17.	report potential hazards to the supervisor immediately		5	1	4
PC18.	follow standard procedures to deal with accidents and emergency situations		5	2	3
PC19.	use first aid kit as and when required and provide appropriate treatment in case of any injuries		5	2	3
			100	30	70
GRAND TOTAL		300	300	90	210