Syllabus For Brackish water Aquaculture Farmer(RPL)

Course Name	**Brackish water Aquaculture Farmer(RPL)**
Sector	**AGRICULTURE**
Course Code	**AGR/2021/BRAF/059**
Level	**4 (RPL)**
Occupation	**Brackish water Aquaculture Farmer**
Course Duration	**Total Duration 70 Hrs (T-39 , P- 31)**
Trainees' Entry Qualification	**Class VIII Pass with 5 years experience in the relevant field**
Trainers Qualification	**Bachelor degree in Fishery science/ Zoology/ Chemistry or equivalent from a recognized University/ Board/ Institute with minimum 2 Years' experience in Fisheries field.**

Structure of Course:

Module No.	Module name	Theory (Hrs)	Practical (Hrs)	Total (Hrs)
1	**Introduction**	3	2	5
2	**Prepare soil and ensure water quality management**	15	10	25
3	**Maintain ponds and carry out rearing of post larvae**	10	10	20
4	**Carry out management of fish farm**	5	5	10
5	**Perform harvesting and marketing activities for brackishwater organisms**	2	3	5
6	**Ensure safety, hygiene and sanitation practices for culture operations**	4	1	5

	TOTAL	39	31	70

SYLLABUS:

Sl no	Revise Module (Proposed)	Key learning Outcomes	Equipment required
1	**Introduction** Theory Duration: 3 hrs Practical Duration : 2 hrs	• Study the scope of brackish water aquaculture in India • Understand the role of a brackish water aquaculture farmer and the progression pathways • Identify different marine/brackish water fish species that can be cultured • Familiarize with the guidelines and policy of government of India related to setting a brackish water farming unit	Laptop, white board, marker, projector.
2	**Prepare soil and ensure water quality management** Theory Duration: 15 hrs Practical Duration: 10 hrs	• Familiarize with the water quality parameters: temperature, transparency, turbidity, pH, electrical conductivity, salinity, chlorinity, total dissolved solids (TDS), dissolved oxygen, free carbon dioxide, total alkalinity, total solids (TDS, TSS), total hardness, calcium, magnesium, inorganic nitrogen (ammonia & nitrate) and phosphorus. • Familiarize with the physical properties of soil; soil colour. texture, structure, pore size, bulk density, water holding capacity, soil types and their distribution. soil fertility, soil reaction: acidity, alkalinity, conductivity, redox - potential. saline soils, alkali soils, acid sulphate soils, iron pyrites, soil reclamation. • Undertake soil and water amendments: addition of lime, manures, fertilizers, micronutrients,	Benchtop pH Meter, Conductivity Meter, Dissolved Carbon Dioxide Meter ,Dissolved Oxygen Analyser, Portable Conductivity Meter, Secchi Disc, Portable Turbidity Meter, Spectrophotometer Soluble Reactive Phosphorous Analyzer, Centrifuge, Thermometer, Orbital Shaker, BOD Analyser, Flame Photometer, Hot plate, Double distillation Unit, Whattman Filter Paper, Volumetric Flask (10ml ,25ml,
Sl no	**Revise Module (Proposed)**	**Key learning Outcomes**	**Equipment required**

		zeolites, alum, gypsum. • Undertake environmental ameliorative steps like chlorination, liming, application of deodorizers, bacterial Benchtop pH Meter, Conductivity Meter, Dissolved Carbon Dioxide Meter ,Dissolved Oxygen Analyser, Portable Conductivity Meter, Secchi Disc, Portable Turbidity Meter, Spectrophotometer Soluble Reactive Phosphorous Analyzer, Centrifuge, Thermometer, Orbital Shaker, BOD Analyser, Flame Photometer, Hot plate, Double distillation Unit, Whattman Filter Paper, Volumetric Flask (10ml ,25ml, 100ml, 250ml, 500ml, 1000ml), Flat bottom bottom, Flask ,Round bottom Flask, Testtube, Pippete, Dropper, DO Brown Bottles, Measuring Cylinder, Glass Funnel, Burette, Burette Stand. Brackishwater Aquaculture Farmer 3 Sr. No. Module Key Learning Outcomes Equipment Required formulation.	100ml, 250ml, 500ml, 1000ml), Flat bottom bottom, Flask .
3	**Maintain ponds and carry out rearing of post larvae** Theory Duration: 10 hrs. Practical Duration : 10 hrs.	• Undertake design and construction of pond, surveying of land • Perform site selection for brackishwater aquaculture farm , preparation of farm layout, design and construction of dike water supply and drainage. • Identify major cultivated species of shrimps. • Undertake post larval rearing of shrimp, major cultivatable brackishwater fish species (grey mullet, milk fish, sea bass, oyster, clam, mussles)	Pond constructio n equipment-JCB, Tractor with accessories, roller, farm equipment such as aerators, generator, water pumps (diesel & electric operated), check trays, plankton nets, cast nets, bag nets, plastic sheet, pond lining material, Bird net, Crab fencing net, polythene sheet, water pumps, 5 Nos FRP Tanks of 500 to 1 ton capacity, Audiovisual aids, land survey equipment, engineering chain, tape, ranging rod.
4	**Carry out Management of fish farm** Theory Duration	• Undertake soil and water quality management • Undertake pre-stocking preparation liming, tilling, fertilization,	Laptop, white board, marker, projector

		application	

Sl no	Revise Module (Proposed)	Key learning Outcomes	Equipment required
	5 hrs Practical Duration 5 hrs	of microbial product and pond conditioner for improvement of soil and water quality • Undertake stocking, seed quality assessment, stress tolerance, screening of larvae for major pathogens, follow acclimatization protocols • Ensure feeding management, management of pond bottom during culture operation.	
5	**Perform harvesting and marketing activities for brackishwater organisms** Theory Duration: 2 hrs Practical Duration: 3 hrs	• Ensure harvesting of drainable pond • Ensure Seining of drainable pond by gill netting, • Undertake hygienic handling, sorting, preservation and transportation • Identify major market and price discovery mechanism	Laptop, white board, marker, projector,
6	**Ensure safety, Hygiene and sanitation practices for culture operations** Theory Duration: 4 hrs. Practical Duration: 1 hrs	• Ensure food safety issue, traceability, certification • Ensure public health concern • Follow government norms on antibiotics and other pharmacological active substances, banned antibiotics, • Implement measures for overcoming antibiotics residue, and follow HACCP concepts	Laptop, white board, marker, projector.
	Total duration of course : 70 hrs Theory : 39 hrs, Practical : 31hrs		