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Syllabus For FISH FEED PREPARATION TECHNICIAN(RPL)

Course Name	**FISH FEED PREPARATION TECHNICIAN(RPL)**
Sector	**AGRICULTURE**
Course Code	**AGR/2023/FFPT/153**
Level	**4 (RPL)**
Occupation	**FISH FEED PREPARATION TECHNICIAN**
Course Duration	**Total Duration 70 Hrs (T- 54 , P-16)**
Trainees' Entry Qualification	**Class 10th Pass with 5 years experience in the relevant field**
Trainers Qualification	**B.Sc. with Bio. Science with minimum 2yrs.experience in fisheries**

Structure of Course:

Module No.	Module name	Outcome	Theory (Hrs)	Practical (Hrs)	Total (Hrs)
1	Introduction and basic information on feed preparation	Explain on important of Fish feed and their basic information on feed preparation.	6	1	7
2	Importance of protein, fat, carbohydrate, vitamins and minerals in fish feed	Explain the importance of protein, fat, carbohydrate, vitamins and minerals in fish feed	6	2	8
3	Different types of fish feed and their importance	Explain different types of fish feed based on their culture practices	6	2	8
4	Feed ingredients and their composition	Estimate proximate composition and importance of feed ingredients.	6	2	8
5	Naturally occurring toxins in feed ingredients	Demonstrate Process to reduce harmful effects of toxins	6	2	8
6.	Feed formulation	Prepare feed formulation using different techniques.	6	2	8
7.	Sinking and Floating feeds preparation	Prepare different sinking and floating feeds pellets.	10	4	14
8.	Feed storage	Perform feed storage techniques	6	1	7
TOTAL:			54	16	70

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SYLLABUS:

Module No. 1: Introduction and basic information on feed preparation

Outcome: Explain on important of Fish feed and their basic information on feed preparation.

Theory Content: **I**mportant of Fish feed and their basic information on feed preparation

Practical Content: To be familiar with different feeds available in laboratort and with instruments required for feed preparation.

Module No. 2: Importance of protein, fat, carbohydrate, vitamins and minerals in fish feed Outcome:

Explain the importance of protein, fat, carbohydrate, vitamins and minerals in fish feed. Theory Content:

The importance of protein, fat, carbohydrate, vitamins and minerals in feed

Practical Content: To know the different proteins, fats

Module No. 3: Different types of fish feed and their importance

Outcome: Explain different types of fish feed based on their culture practices.

Theory Content: Different types of fish feed based on their culture practices

Practical Content: To be familiar with the different types of fish feeds and to know which feeds are to applied for which culture practices.

Module No. 4: Feed ingredients and their composition

Outcome: Estimate proximate composition and importance of feed ingredients.

Theory Content: Commonly used feed ingredients and their proximate composition and importance

Practical Content: To estimate the proximate composition of commonly used ingredients

Module No. 5: Naturally occurring toxins in feed ingredients **Outcome:**

Demonstrate Process to reduce harmful effects of toxins.

Theory Content: Naturally occurring toxins and their harmful effects

Practical Content: To be familiar with some toxins like aflatoxins on feeds and to train them how to avoid the formation of few toxins also

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Module No. 6: Feed formulation

Outcome: Prepare feed formulation using different techniques.

Theory Content: Different feed formulation techniques with available ingredients

Practical Content: To do practically feed formulation with different techniques like Pearson's method, Linear programming method etc.

Module No. 7: Sinking and Floating feeds preparation

Outcome: Prepare different sinking and floating feeds pellets.

Theory Content: Different sinking and floating feeds and its preparation techniques

Practical Content: To prepare different sinking & floating feeds pellets

Module No. 8: Feed storage

Outcome: Perform feed storage techniques.

Theory Content: Different feed storage techniques

Practical Content: Different packaging materials and their storage time

Learning Outcome – Assessment Criteria

Module No.	Outcome	Assessment Criteria
1	Explain on important of Fish feed and their basic information on feed preparation.	**After completion of this module students will be able to:** 1.1 know what is feed 1.2 understand its importance 1.3 know its types also
2	Explain the importance of protein, fat, carbohydrate, vitamins and minerals in fish feed	**After completion of this module students will be able to:** 2.1 know the importance of protein, fat and carbohydrate 2.2 understand the importance of vitamins and minerals also 2.3 familiar with these also
3	Explain different types of fish feed based on their culture practices	**After completion of this module students will be able to:** 3.1 familiar with the different types of fish feeds 3.2 know which feeds are to applied 3.3 know on feeds with culture practices

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Module No.	Outcome	Assessment Criteria
4	Estimate proximate composition and importance of feed ingredients.	**After completion of this module students will be able to:** 4.1 get idea on commonly used feed ingredients 4.2 estimate the proximate composition of commonly used ingredients
5	Demonstrate Process to reduce harmful effects of toxins	**After completion of this module students will be able to:** 5.1 have idea on naturally occurring toxins and their harmful effects 5.2 familiar with some toxins like aflatoxins on feeds 5.3 train them how to avoid the formation of few toxins also.
6	Prepare feed formulation using different techniques.	**After completion of this module students will be able to:** 6.1 know the feed formulation techniques with available ingredients 6.2 do practically feed formulation with different techniques like Pearson's method, Linear programming method etc.
7	Prepare different sinking and floating feeds pellets.	**After completion of this module students will be able to:** 7.1 have idea on different sinking feeds and its preparation techniques 7.2 prepare different sinking feeds pellets practically 7.3 have idea on different floating feeds and its preparation techniques 7.4 prepare different floating feeds pellets practically
8	Perform feed storage techniques	**After completion of this module students will be able to:** 8.1 familiar with different feed storage techniques 8.2 know different packaging materials and their storage time

List of Tools, Equipment & materials needed for 30 Trainees (Practical)

Sl No	Items Name	Specification	Qty
1	Different locally available ingredients (Protein source)		Lumsum
2	Different locally available ingredients (Fat source)		Lumsum
3	Different locally available ingredients (Carbohydrate source)		Lumsum
4	Vitamins and minerals mixtures		Lumsum
5	Kjeldal system for protein estimation		one
6	Soxhlet system for fat		one

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7	Bomb calorimeter for energy		one
8	Feed analyzer		one

Sl No	Items Name	Specification	Qty
9	Mini feed mill for sinking feed preparation		one
10	Mini Extruder feed mill for floating feed preparation		one
11	Different feed packaging materials		One set