

FISH FARM WORKER(FFMWA)

Syllabus

(Safety Practices 25 Hrs, Theory 100 Hrs, Practical 450 Hrs, Employability Skill 75 Hrs)

course No.	Title of the Course	Estimated (learning Hours)
FFW 01	Basics of Commercial Fish Farming	60 (10T+50P)
FFW02	Pre-stocking Pond Preparation and management	110(20T+90P)
FFW03	Scientific Nutrient Management and water quality Management	100(20T+80P)
FFW04	Scientific disease management, prevention in fish farming	110(20T+90P)
FFW05	Harvesting and Marketing	105(15T+90P)
FFW06	Record Keeping, Marketing & trade Management in Fish farming.	65(10T+55P)
FFW07	Safe working practices as- Sanitation, Hygiene & Bio-Security Management in Fish farming	25 (05T+ 20P)
FFW08	Employability skills (English Literacy & Communication Skills, I.T. Literacy, Entrepreneurship Skills, Productivity & Quality Tools)	75
Total Learning (Theory +Practical) Hours:		650 Hrs (100T+450P+25Safety+ 75 Employability)

DETAILS OF THEORY & PRACTICAL SYALLABUS: FISH FARM WORKER

Sl. No.	Course Title	Hours
FFW 01	Basics of Commercial Fish Farming - <i>Explain the basics of Scientific commercial Fish Farming, Identification of freshwater carps, catfish, prawns, various methods of culture and types of culture.</i>	10T+50P
Theory	Introduction of different freshwater fishes, prawn, catfishes for commercial fish farming, scientific culture method (Extensive, semi intensive, Intensive) and culture types (monoculture or composite culture) for carps, catfishes and prawns, various Fish farming practices (Freshwater, Barckish water) in the state along with their future perspectives (scope and opportunity) and constraints (marketing, seed production) of fish farming, various structure of commercial fish farms in the state along with their future perspectives.	10Hrs
Practical	Identify different freshwater fishes, prawn, catfishes for commercial fish farming, scientific culture method (Extensive, semi intensive, Intensive) and culture types (monoculture or composite culture) for carps, catfishes and prawns, Elaborate various Fish farming practices in the state along with their future perspectives and constraints of fish farming, Elaborate various structure of commercial fish farms in the state along with their future perspectives.	40Hrs
FFW02	Pre-stocking Pond Preparation and management - <i>Able to illustrate Pond preparation, fertilization, water quality checking, stocking of fish seed for profitable Fish farming.</i>	20T+90P
Theory	Preparation of pond for carp culture using appropriate methods for	20Hrs

	removal of unwanted organisms, filling of water to requisite depth, eradication of predatory and weed fishes, Preparation of ponds for freshwater cat fish culture (i.e. magur – <i>Clarias batrachus</i>), crustaceans (Prawn), Preparatory dose of lime, manures and fertilizers during the pond preparation for different culture fish species, Seed stocking procedure with due acclimatization, Different suitable water quality parameter (pH, DO, hardness, Alkalinity, Turbidity) before the stocking of fish seed, Stocking density and ratio of fishes in different culture system and culture method for variety of fishes.	
Practical	Demonstrate Preparation of pond for carp culture using appropriate methods for removal of unwanted organisms, filling of water to requisite depth, eradication of predatory and weed fishes, Preparation of ponds for freshwater cat fish culture (i.e. magur – <i>Clarias batrachus</i>), crustaceans (Prawn), Preparatory dose of lime, manures and fertilizers during the pond preparation for different culture fish species, Seed stocking procedure with due acclimatization, Checking of suitable water quality parameter before the stocking of fish seed, demonstrate Stocking density and ratio of fishes in different culture system and culture method for variety of fishes.	90Hrs
FFW03	Scientific Nutrient Management and water quality Management - <i>Capable to demonstrate feeding management, feed preparation and water quality monitoring</i>	20T+80P
Theory	Feeding requirements in different fishes along with preparing low cost balanced Ration & feed formulation of fishes, Identify different types conventional feed as-De Oiled Rice Bran, Husk, Mustard oil cake, Ground nut oil cake, Fish meal etc. & non-conventional as- Neem Cake, Azolla etc. feed ingredients of fishes, proper aeration and water replenishment procedure, Formulation of various forms of fish feed as-Mash, Pallet, Floating etc. feeding rate and methods feeding with good FCR, dosages of lime, manures, fertilizers to maintain suitable soil and water quality in the different culture method.	20Hrs
Practical	Preparation of low cost balanced Ration & feed formulation, Identify the feed ingredients, Identify different types conventional feed as-De Oiled Rice Bran, Husk, Mustard oil cake, Ground nut oil cake, Fish meal etc. & non-conventional as- Neem Cake, Azolla etc. feed ingredients of fishes, Demonstrate proper aeration and water replenishment procedure, Formulate the various forms of fish feed as-Mash, Pallet, Floating etc. feeding rate and methods feeding, Estimation of FCR, Application of lime, manures, fertilizers to maintain suitable soil and water quality in the different culture method.	80Hrs
FFW04	Scientific disease management, prevention in fish farming - <i>Identify various infectious and non- infectious diseases that occur in Fish farming, different medication & Preventive measures required in the fish farm.</i>	20T+90P
Theory	Classification of infectious diseases such as-Viral, Bacterial, Fungal, protozoa and Parasitic etc. occurred in fishes, diagnostic symptoms of infectious fish diseases and demonstrate various types of medication, safety and security protocols to prevent infectious disease outbreak in	20Hrs

	fish farm, identify abnormal behavior (such as surfacing, gasping, irritating their scale on the hard substrate) , if any, observed in pond or presence of parasites (Argulus, Ergasilus, lernaea), lesion on body etc.	
Practical	Identification of infectious diseases such as-Viral, Bacterial, Fungal, protozoa and Parasitic etc. occurred in fishes, diagnose the symptoms of infectious fish diseases and application various types of medication, safety and security protocols to prevent infectious disease outbreak in fish farm, identify abnormal behaviour, if any, observed in pond or presence of parasites, lesion on body etc.	90Hrs
FFW05	Harvesting and Marketing - Able illustrate the harvesting procedure, marketing and transportation of marketable fishes.	15T+90P
Theory	Explain the harvestable size, harvesting time of different culture method, market survey procedure, surveying species demand and marketing strategies, Identify the suitable mesh size of the harvesting net for different fish species for marketing, the packaging and transportation procedure for the harvested fishes in good condition, Procedure of minimum handling procedure during harvest till marketing.	15Hrs
Practical	Identify the harvestable size, asses the harvesting time of different culture method, market survey procedure, surveying species demand and marketing strategies, Identify the suitable mesh size of the harvesting net for different fish species for marketing, Demonstrate the packaging and transportation procedure for the harvested fishes in good condition, Procedure of minimum handling procedure during harvest till marketing.	90Hrs
FFW06	Record Keeping, Marketing & trade Management in Fish farming - Demonstrate the process of documentation, record keeping and trade policy in commercial Fish Farming.	15T+50P
Theory	Elaborate to maintain documents efficient Fish farm management, procedure for record keeping in fish farm, How to maintain the record of harvest and sale proceeds, illustrate different value chain system and marketing process like-retail and whole sale process etc. in commercial fish farming,	15Hrs
Practical	Demonstrate the documents maintaining efficient Fish farm management, procedure for record keeping in fish farm, Demonstrate How to maintain the record of harvest and sale proceeds, Identifying different value chain system and marketing process like-retail and whole sale process etc. in commercial fish farming,	50Hrs
FFW07	Safe working practices as- Sanitation, Hygiene & Bio-Security Management in Fish farming - Explain various safe working practices as- farm sanitation, bio-safety and bio-security practices, work place safety and security as standard Ergonomic practices in fish farm as safe, secured and healthy Workplace.	05T+ 20P

Theory	Suitable measures for protection from natural calamities such as flood, storm, protect dyke from erosion or break, protection and prevent escape of the cultured fishes, various types of common predators (like Kingfisher, Cormorants, snake) and preying organisms (like spawn, fry, fingerling) in water bodies, suitable Preventive methods (net fencing, using of thread) to keep away predators in water bodies to protect fish culture, Structural (Includes cleaning and disinfecting the materials used in ponds and building, human traffic control and sanitation, effluent water recycling etc) and Operational Sanitation (i.e. includes daily active procedures like effective disease monitoring through routine disinfection like sterilisation of contact surfaces, control at the visitor's entry point and thorough check of carriers and sources of stocks etc, so as to prevent disease causing agents like virus, bacteria, protozoa, etc. from horizontal transmission of diseases)) measures in for effective bio-security measures (i.e healthy fish stock, disease free fishes, effective sanitation, proper disinfection)in fish farm. Effective systems and routines to ensure healthy and hygienic conditions during all stages of fish culture including transportation and marketing. Identify possibilities of bacterial (water borne, air borne,) and other contamination from human handling. Standard procedures to deal with accidents and emergency situations (i.e. Mass fish mortality, pond poisoning). Different procedure to ensure all nets, utensils and vessels used are decontaminated and clean.	05Hrs
Practical	Demonstrate general farm hygiene & Sanitation procedures, quarantine, isolation, shed cleaning and disinfection procedures, Water sanitation, Disinfection, precaution and handling, Enlist bio-safety & bio-security, Proactive measures to minimize entry of infection agents, Draw & depict Structural and Operational Sanitation measures (Quarantine, Sanitation, Disinfection, Surveillance and Vaccination)in Fish farm.	20Hrs
Total Learning (100-Theory+475-Practical) Hours:		575 Hrs

DETAIL OF EMPLOYABILITY SKILLS SYLLABUS-(25+25+25): 75 HRS

S. No.	CONTENT	PARTICULARS OF SYLLABUS
1.	English Literacy & Communication Skills	Accentuation (mode of pronunciation) on simple words, Diction (use of word and speech), Transformation of sentences, Voice change, Change of tense, Spellings. Reading and understanding simple sentences about self, work and environment. Construction of simple sentences, Writing simple English. Speaking with preparation on self, on family, on friends, classmates, on know, picture reading gain confidence through role-playing. Taking messages, passing messages on and filling in message forms Greeting and introductions office hospitality, Resumes or curriculum vita essential parts, letters of application reference to previous communication.

		Communication and its importance, Principles of Effective communication, Types of communication-verbal, non-verbal, written, email, talking on phone. Nonverbal communication characteristics, components-Para-language, Body-language, Barriers to communication and dealing with barriers. Handling nervousness/ discomfort. Self-awareness, Importance of Commitment, Ethics and Values, Ways to Motivate Oneself, Personal Goal setting and Employability Planning. Manners, Etiquettes, Dress code for an interview, Do's & Don'ts for an interview, Problem Solving, Confidence Building, Attitude.
2.	I.T. Literacy	Introduction, Computer and its applications, Hardware and peripherals, Switching on-Starting and shutting down of computer. Basics of Operating System, WINDOWS, The user interface of Windows OS, Create, Copy, Move and delete Files and Folders, Use of External memory like pen drive, CD, DVD etc, Use of Common applications. Basic operating of Word Processing, Creating, opening and closing Documents, use of shortcuts, Creating and Editing of Text, Formatting the Text, Insertion & creation of Tables. Printing document. Basics of Excel worksheet, understanding basic commands, creating simple worksheets, understanding sample work sheets, use of simple formulas and functions, Printing of simple excel sheets. Internet, Concept of Internet (Network of Networks), Meaning of World Wide Web(WWW), Web Browser, Web Site, Web page & Search Engines. Accessing Internet using Web Browser, Downloading & Printing Web Pages, Opening an email account & use of email. Social media sites & its implication. Information Security & antivirus tools Do's & Don'ts in Information Security, Awareness of IT-ACT, types of cyber-crimes.
3.	Entrepreneurship Skills	Entrepreneur, Entrepreneurship & Self Employment, Entrepreneurial Motivation. Role & Function of Farm Entrepreneur, Qualities of a good Entrepreneur, Forms of Entrepreneurship-Proprietorship, Partnership, Cooperative, Corporation, JSC & PLC. Performance & Record, SWOT Analysis. Sales & distribution Management. Difference between Small & Large Scale farm business, Market & Market Survey, Marketing methods, Publicity and advertisement, Marketing Mix. Preparation of Bankable Agri-allied Project. Role of Various Schemes and Institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ Non financing support agencies to familiarizes with the Policies /Programs & procedure in the available Scheme. Project Appraisal & Feasibility study, Legal formalities i.e., Shop & Farm Act, Estimation & Costing, Investment procedure-Loan procurement-Banking Processes. Personnel & Resource Management etc.

4.	Productivity & Quality Tools	Definition, Necessity, Meaning of GDP. Personal/Workman-Incentive, Production linked Bonus, Improvement in living standard. Industry Nation. Skills, Working Aids, Automation, Environment, Motivation. How improves or slows down. Banking processes, Handling ATM, KYC registration, safe cash handling, Personal risk and Insurance. Meaning of quality, Quality characteristic. Definition, Advantage of small group activity, objectives of quality Circle, Roles and function of Quality Circles in Organization, Operation of Quality circle. Approaches to starting Quality Circles, Steps for continuation Quality Circles. Idea of ISO 9000 and BIS systems and its importance in maintaining qualities. Purpose of Housekeeping, Practice of good House-keeping. Basic quality tools with a few examples.
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Outcomes

OUTCOMES TO BE ASSESSED	ASSESSMENT CRITERIA FOR THE OUTCOME
1. <i>Explain the basics of Scientific commercial Fish Farming, Identification of freshwater carps, catfish, prawns, various methods of culture and types of culture.</i>	(1.1) To ask the trainee to identify and elaborate different freshwater fishes, prawn, catfishes for commercial fish farming. (1.2) Trainee will be asked to explain the different scientific culture method (Extensive, semi intensive, Intensive) and culture types (monoculture or composite culture) for carps, catfishes and prawns. (1.3) Trainee will be asked to illustrate the various Fish farming practices (Freshwater, Brackish water) in the state. (1.4) Trainee will be able to explain the future perspectives and constraints of fish farming. (1.5) To assess the trainee on the basis of report/assignment submitted regarding various Fish farming practices in the state along with their future perspectives and constraints of fish farming. (1.6) Assessor will assess the assignment or report submitted by trainee to supervisor or competent of authority regarding various structure of commercial fish farms in the state along with their future perspectives.
2. <i>Able to illustrate Pond preparation, fertilization, water quality checking, stocking of fish seed for profitable Fish farming.</i>	(2.1) Trainee will be asked to explain preparation of pond for carp culture using appropriate methods (i.e. Mohua oil cake, Bleaching and Urea) for removal of unwanted organisms (weed fish, aquatic insect, predatory fish), filling of water to requisite depth, eradication of predatory (i.e. <i>Channa sp.</i>, <i>Clarias batrachus</i>, <i>Heteropneustes fossilis</i>) and weed fishes (i.e. <i>Puntius sp.</i>, <i>Oxygaster sp.</i>, <i>Ambassis sp.</i>, <i>Amblypharyngodon mola</i> etc.) (2.2) Assessor will ask the trainee to explain the preparation of

	ponds for freshwater cat fish culture (i.e. magur – <i>Clarias batrachus</i>), crustaceans (Prawn). (2.3) Assessor will ask the trainee to explain about the preparatory dose of lime, manures and fertilizers (Cowdung, Urea, Single Super Phosphate) during the pond preparation for different culture fish species. (2.4) Assessor will ask the trainee about the seed stocking procedure with due acclimatization. (2.5) Assessor will ask the trainee to enlist different suitable water quality parameters (pH, DO, Hardness, Alkalinity, Temperature) before the stocking of fish seed. (2.6) Trainee will be able to demonstrate how to check the water quality parameters before the stocking of fish seed. (2.7) Assessor will ask the trainee to explain about stocking density and ratio of fishes in different culture system (Monoculture and Composite culture) and culture method (Extensive, Semi Intensive, Intensive) for variety of fishes.
3. Capable to demonstrate feeding management, feed preparation and water quality monitoring,	(3.1) Trainee will be able to demonstrate the feeding requirements in different fishes along with preparing low cost balanced ration & feed formulation of fishes. (3.2.) Trainee will be able to explain different types conventional feed (as-De Oiled Rice Bran, Husk, Mustard oil cake, Ground nut oil cake, Fish meal etc.) & non-conventional (as- Neem Cake, Azolla etc.) feed ingredients of fishes. (3.3) The trainee will be able to illustrate the suitable ways of providing proper aeration and water replenishment in the culture pond. (3.4) The trainee will be able to explain formulation of various forms of fish feed (as-Mash, Pallet, Floating etc.) feeding rate and methods of feeding for maintaining good FCR(Feed Conversion Ratio). (3.5) Trainee will be asked to demonstrate appropriate dosages of lime, manures, fertilizers to maintain suitable soil and water quality in the different culture method.
4. Identify various infectious and non- infectious diseases that occur in Fish farming, different medication & Preventive measures required in the fish farm.	(4.1) Assessor will ask the trainee to explain various category of infectious diseases (such as-Viral, Bacterial, Fungal, protozoa and Parasitic etc.) occurring in fish farming. (4.2) Assessor will ask the trainee to explain various category of non-infectious diseases (Gas bubble disease, Hypoxia, Alkalosis, Acidosis) occurring in fish farming. (4.3) Trainee will be asked to explain various diagnostic symptoms of infectious & non-infectious fish diseases. (4.4) Trainee will be asked to demonstrate the different types

	of medication applicable for such infectious & non-infectious fish diseases. (4.5) Assessor will examine whether the trainee is able to perform various safety and security protocols to prevent infectious disease outbreak in fish farm. (4.6) The trainee will be able to identify abnormal behavior (such as surfacing, gasping, irritating their scale on the hard substrate), if any, observed in pond or presence of parasites (Argulus, Ergasilus, Iernaea), lesion on body etc. and report it to the technician. (4.7) Trainee will be able to carry out periodic soil, water and fish sampling and netting operation for fish health observation. What are the tests to be carried out for soil, water & fish samples??? pH, DO, Alkalinity, Hardness, Turbidity
1. Able to illustrate the harvesting procedure, marketing and transportation of marketable fishes.	(5.1) Assessor will ask the trainee to explain the harvestable size, harvesting time of different culture method. (5.2) Assessor will ask the trainee to identify the harvestable size and assess the harvesting time of different culture method. (5.3) The trainee will be able to explain the market survey procedure, surveying species demand and marketing strategies. (5.4) The trainee will be able to identify the suitable mesh size of the harvesting net for different fish species for marketing. (5.5) The trainee will be able to demonstrate the packaging and transportation procedure for the harvested fishes in good condition. (5.5) The trainee will be able to demonstrate the minimum handling procedure during harvest till marketing.
2. Demonstrate the process of documentation, record keeping and trade policy in commercial Fish Farming.	(6.1) Trainee will be asked to demonstrate how to maintain documents efficient Fish farm management. (6.2) Trainee will be asked to demonstrate the procedure for record keeping in fish farm. (6.3.) Assessor will examine whether the trainee is able to maintain the record of harvest and sale proceeds. (6.4) Trainee will be able to illustrate different value chain system and marketing process like-retail and whole sale process etc. in commercial fish farming. (6.5) Trainee will be asking about the record cost of inputs and other miscellaneous expenditures.
3. Explain various safe working practices as- farm sanitation, bio-safety and bio-security practices, workplace safety and security as	(7.1) Assessor will ask the trainee to explain suitable measures for protection of pond from natural calamities such as flood, storm, protect dyke from erosion or break, protection and prevent escape of the cultured fishes. (7.2) Trainee will be asked to explain various types of common

<i>standard Ergonomic practices in fish farm as safe, secured and healthy Workplace.</i>	predators (i.e. Kingfisher, Cormorants, Snake) and preying organisms (i.e. spawn, fry) in water bodies. (7.3) Trainee will be asked to explain suitable methods such as fencing to keep away predators in water bodies to protect fish culture. (7.4) Assessor will ask the trainee to explain various Structural (Includes cleaning and disinfecting the materials used in ponds and building, human traffic control and sanitation, effluent water recycling etc) and Operational Sanitation measures (i.e. includes daily active procedures like effective disease monitoring through routine disinfection like sterilisation of contact surfaces, control at the visitor's entry point and thorough check of carriers and sources of stocks etc, so as to prevent disease causing agents like virus, bacteria, protozoa, etc. from horizontal transmission of diseases) for effective bio-security measures (i.e healthy fish stock, disease free fishes, effective sanitation, proper dis infection) in fish farm. (7.4) Assessor will ask the trainee to explain the effective systems and routines (i.e. Fish health checkup, DO level of water, pH) to ensure healthy and hygienic conditions during all stages of fish culture including transportation and marketing. (7.5) Assessor will examine whether the trainee is able to identify possibilities of bacterial (water borne, air borne,) and other contamination from human handling. (7.6) Trainee will be asked to explain standard procedures to deal with accidents and emergency situations (i.e. Mass fish mortality, pond poisoning). (7.7) Trainee will be asked about different procedure to ensure all nets, utensils and vessels used are decontaminated and clean. (7.8) Trainee will be able to demonstrate general farm hygiene & Sanitation procedures, quarantine, isolation, shed cleaning and disinfection procedures, Water sanitation, Disinfection, precaution and handling etc (7.9) Trainee will be asked to enlist different bio-safety & bio-security measures, proactive measures to minimize entry of infection agents. (7.10) Trainee will be asked to draw & depict Structural and Operational Sanitation measures (Quarantine, Sanitation, Dis infection, Surveillance and Vaccination) in Fish farm.
8. Explain & practice soft skills	(8.1)To rate the trainee on his ability to practice soft skills, including clear and concise communication, in day to day work with team and with higher authority in Fish farming.

9.<i>Demonstrate knowledge of concept & principles of basic arithmetic & financial calculation & apply know how of specific area to perform practical operations.</i>	(9.1) To apply basic arithmetic calculations for arriving dimensional parameters as per drawing. (9.2) To apply basic financial calculation to understand cost of materials & labour and basic concepts of profit/loss in Fish farming. (9.3) To engage in basic banking transactions as customer in Fish farming.
10. <i>Explain time management, entrepreneurship & manage related task in day to day work for personal & social growth.</i>	(10.1) To ascertain appropriate time for the assigned task and execute the assigned task within time frame. (10.2) To manage own work within specified time. (10.3) To explain importance & factors affect the development of entrepreneurship. (10.4)To identify service providers for developing entrepreneur/business establishment.