

Prospectus



ONE YEAR POST-GRADUATE DIPLOMA IN INLAND FISHERIES AND AQUACULTURE MANAGEMENT (PGDIF&AM)



ICAR - Central Institute of Fisheries Education
(Deemed University)
Panch Marg, Yari Road, Versova, Mumbai – 400 061

Format of Application for PG Diploma in Inland Fisheries & Aquaculture Management Course

1. Name:
2. Date of Birth:
3. Sex:
4. Father's Name:
5. Contact Address:
7. E-Mail ID and Phone number:
8. Nationality:
9. Educational Qualification:
11. Experience (if any):
12. If serving, the name of the employers:
13. Language known:
14. Recommendation of the employer (Please enclose):
15. Certificate of experience (Please enclose):
16. Certificates of educational qualifications (Please enclose):

Affix a self signed
Passport Photo

Date:

Place:

Signature

To be submitted:

The Officer in Charge

ICAR-Central Institute of Fisheries Education

Kolkata Centre

32 GN Block, Sector V

Salt Lake, Kolkata 700 091

Phone: +33 2357 3893/5269/7265

Fax: + 33 2357 3469

email: kolkata@cife.edu.in

Detail of this course is also available in CIFE website: www.cife.edu.in

Kolkata, formerly, Calcutta, is the capital city of West Bengal and was the capital of British India till 1911. The city has a rich history and heritage date back to 500 years. It is also the commercial capital of Eastern India, located on the bank of Hooghly river. Howrah Bridge, located over the Hoogli River in West Bengal, India, is said to be the busiest bridge of the world. It got its name owing to the fact that it connects the city of Howrah to Kolkata. Kolkata Victoria memorial hall is a fabulous museum that was established in the year 1921. Eden garden of Kolkata, India is one of the major tourist attraction places of the city of joy. Kolkata is the Cultural Capital of India. It has long been known for its literary, artistic and revolutionary heritage. You will enjoy the fabulous delicacy macher jhol (fish curry) and many other fish based traditional dishes here. Kolkata is the gate way of north-eastern India. It is the ornamental fish hub of India, around 80% of the total volume of ornamental fish exported from India is from Kolkata. West Bengal stands first in fish production among all the states of India. In and around Kolkata all kinds of aquatic ecosystems and fisheries resources e.g. freshwater, brackish water and marine water are there.

GENESIS

CIFE, Kolkata Centre has historical importance in imparting fisheries education in India. It was established in 1947 as 'Inland Fisheries Training Centre' (IFTC) under Central Inland Fisheries Research Institute (CIFRI), Barrackpore in West Bengal. This Centre was solely responsible for

providing trained manpower to fisheries sector in the country as during that time there was no fisheries college or university. To begin with a ten months training course on 'Inland Fisheries Development and Administration', with an intake capacity of 25 students was organised in 1948. From 1960-61, the duration of the course was raised to one year and the intake capacity was increased to 40. It was taken over by CIFE, Mumbai in October, 1967. The CIFE along with its various centres were brought under the fold of the ICAR in April, 1979. The course was reorganised from the 1981-82 session and a new curriculum designated as "One Year Post-graduate Certificate Course on Inland Fisheries Management" was introduced. The Centre has been shifted to its own new building complex, established at 32-GN Block, Sector -V, Salt Lake City, Kolkata in June, 1997-98 and started functioning under the name of "CIFE, KOLKATA CENTRE". The one year post-graduate certificate course was upgraded to one year semester pattern "Post-Graduate Diploma in Inland Fisheries" (PGDIF) from 2000-2001. The PGDIF course was replaced by a new one year diploma course for In-service candidates the semester pattern Post Graduate Diploma in Inland Fisheries and Aquaculture Management (PGDIF&AM) course which was introduced from 2014.



POST-GRADUATE DIPLOMA IN INLAND FISHERIES AND AQUACULTURE MANAGEMENT (PGDIF&AM)

TIME AND DURATION

The duration of the course is one year. Academic session will start on 01 May and end on 31 April of the succeeding year.

WHO CAN APPLY

The course is open for Graduate in-service candidates from the state fisheries departments in India. There is no restriction on the age of the candidate.

EQUIVALENCE

This course is equivalent to the previous course P.G. Diploma in Inland Fisheries (PGDIF) conducted at CIFE, Kolkata Centre, from 2000 to 2008.

HOW TO APPLY

Trainees will be admitted on the basis of recommendations from respective state fisheries department. Candidates should submit their candidature duly recommended by respective state fisheries directorate along with the attested copies of mark sheets and certificates addressed to the Officer in Charge, CIFE Kolkata Centre, 32 GN Block, Sector V, Salt Lake, Kolkata 700091, latest by 15 April for the session starting on 01 May of that year.

NUMBER OF SEATS

A maximum of 30 candidates would be selected 'on first come first serve' basis.



COURSE FEE

Total course fee is ₹ 80,000/-. Out of this, ₹ 15,000/- will be treated as registration fee for the course which will cover the Tuition Fee, Course Material, Library and Internet Fee, Hostel Fee, Examination Fee, etc. ₹ 15,000/- will be reimbursed to the participants as travel cost, and boarding and lodging charges during out-station field-attachment training. ₹ 14,000/- will be reimbursed to the participants during all India study tour. If the total expenditure of out-station travel exceeds the allotted budget of ₹ 29,000/- (₹ 15,000 & ₹ 14,000), the participant may claim the extra amount from the sponsoring department through reimbursement or meet from personal funds. A stipend of ₹ 3,000/- per month (i.e., ₹ 36,000/- for the whole year) will be provided to the participants from the fee paid on the basis of their attendance to support boarding expenses when they are not in tour and staying in the hostel at CIFE, Kolkata Centre. The total course fee has to be paid on or before joining the course in the form of a demand draft drawn in favour of ICAR CIFE Sub-Unit, Kolkata and shall be payable at Kolkata.



LOCATION

The course will be conducted at CIFE, Kolkata Centre, which is situated in an idyllic environment in the Sector V of Salt Lake Electronics Complex, the most happening place of Kolkata. The centre is well connected by road, rail and air. Howrah and Sealdah Railway stations are 18 and 10 km, respectively, from the centre, while the Netaji Subhash Chandra Bose International Airport at Dum Dum is 16 km away. Frequent public and private bus transport, and taxi services are available throughout the day from all parts of the city to the centre. The centre is located near Nicco Park and Shashthya Bhawan.



ACCOMMODATION FACILITIES

The Centre has separate hostel facilities for male and female participants within the campus. The Trainees' Hostel has 36 well-furnished two-bedded rooms for trainees and students. It has Trainees' Mess, Television Lounge, Reading Room, Recreation Hall, facilities for indoor/outdoor games and internet. Ladies' Hostel is a well-furnished facility that can accommodate 16 participants. The centre has municipal water connection. Health checks and medical facilities for staff and trainees are available within the campus. Printing, photocopy, facsimile and telephone facilities are also available in and around the campus.



COURSE CURRICULUM

FIELD TRAINING

1. For better delivery and understanding of the course, field training is included in each paper.
2. Trainees have to submit detailed reports on field training of each paper before the date of the end of the semester examination for evaluation.

ASSIGNMENT

Each paper will contain at least one assignment and participants have to submit the same before the end of the semester.

PROJECT DISSERTATION

For partial fulfilment of the course, participants will be allotted a topic in the second semester for project work and this will be related to fisheries in their respective state. The project has to be completed and the dissertation is to be presented before an evaluation committee constituted for the purpose. The final dissertation with the corrections/modifications suggested, if any, has to be submitted before the end of the course.

ALL INDIA STUDY TOUR

Participants will undergo a study tour programme for a period of about 21 days covering different parts of India which are important from fisheries and aquaculture point of view. The tour will be conducted during 2nd semester.



1ST SEMESTER (1st May to 31st October)

PAPER I: Fishery Biology and Resource Management

Theory:

- Classification and identifying characters of commercially important fishes.
- Biology of cultivable fish and shellfish based on their natural habitat, food and feeding habits, growth, maturity, fecundity and breeding habits.
- Inland water resources, allocation of water in different resources
- Different natural fish production systems of India and their importance:
 - a) River systems of India - general characteristics, resources, hydro-biological features, ecology, fisheries status, their development and management.
 - b) Lakes and Reservoirs - Fisheries and management of important reservoirs and lakes, their developmental measures.
 - c) Wetlands - Ecology and fisheries of floodplain wetlands (beel, jeels, chauras, mauns etc.) and their development.
 - d) Estuaries, lagoons, mangroves and backwaters fisheries and conservation strategies.
 - e) Coldwater fisheries resources
- Biodiversity and conservation of inland fishery resources - Concept of fish biodiversity, Present status of indigenous fish biodiversity, threats to aquatic biodiversities, causes of aquatic pollution, effect of aquatic pollution, dams & weirs and exotic fishes on fish and fisheries, concept of fish migration, fish pass, fish ladders etc., destructive methods of fish catching, conservancy measures for river and reservoir fisheries.





- Concept of enhanced fisheries systems, importance of stocking in lakes, reservoirs and rivers, Cage and pen culture.
- Fish landing centres: Premises and infrastructure facilities, auction hall, good hygiene practices. Inspection and testing, monitoring and record keeping.
- Impact of climate changes on inland fisheries and its mitigation.

Practical demonstration:



Practical classes on the identification of commercially important finfish and shellfish species of inland waters; study of growth, external morphometric and reproductive organs (male and female), gut content, maturity and fecundity of fishes by simple methods; analysis and identification of plankton, aquatic weeds, insects and benthos.

Field attachment:



Familiarisation with aquatic ecosystems and fisheries of various inland fisheries resources including management, profile and role of fishing communities, ecosystem health and biodiversity dimensions, cage and pen culture systems.

PAPER- II: Aquaculture

Theory:

- Status and potential of aquaculture system in India.
- Natural breeding of freshwater and brackish water finfish and shellfishes, method of seed collection and transport.
- Induced breeding of fishes - bundh breeding and hypophysation, brood stock development and breeding plans.
- Hatchery techniques, good hatchery management practices, waste water disposal.
- Management practices of brood stock, nursery, rearing and grow-out ponds.



- Different practices of aquaculture system-composite fish culture, integrated fish farming systems, culture of air breathing fishes, prawn and shrimp culture, Tilapia farming, crab culture, Peri-urban aquaculture (sewage-fed fish culture), coldwater aquaculture (trouts & mahseer), organic aquaculture and Aquaponics.
- Culture and breeding of important exotic and indigenous ornamental fishes.
- Nutrition of finfish and shellfish - Role of live food and artificial feed. Formulation and preparation of fish feed, feeding habits and strategies for important categories of finfish and shellfishes.
- Common diseases of finfish and shellfish, diagnostic symptoms and control measures.
- Comparative evaluation of extensive, semi-intensive and intensive farming for fish and shellfish species.
- Ecological implications of intensive aquaculture systems, management of aquatic weeds and algae in culture systems, guidelines for management of soil, water quality parameters and health management for sustainable aquaculture, EIA in aquaculture operation.
- Concept of BMP (Best Management Practices), certification for aquaculture.
- Application of genetic engineering and biotechnology for development of fisheries and aquaculture- adrogenesis, gynogenesis, selective breeding, polyploidy, sex reversal, molecular markers, DNA barcoding, cryopreservation and gene-banking etc.



Practical demonstration:

Identification of eggs, fry and fingerlings of cultivable fish, prawn and shrimp; identification of post-larvae of prawns and shrimp; identification of common external parasites; examination of external and internal organs for pathological conditions; prophylactic and curative treatments for the control of fish diseases; analytical techniques for water and soil monitoring; feed formulation and preparation; proximate analysis of fish/prawn feed.





Field training:

Induced breeding of fish (both Indian major carps and exotic carps) through hypophysation: Extraction of pituitary gland; administration of pituitary extracts and other synthetic hormones; counting of eggs/spawn; hatchery and nursery management; packaging and transport of seed; acclimatization of seed and their stocking; estimation of physicochemical and biological parameters of soil and water during nursery pond management phase.

Attachment to homestead and commercial aquaculture farms, ornamental fish unit, prawn/shrimp hatchery, sewage-fed fish culture unit, brackishwater fish farm, coldwater fish farm, integrated fish farm and exposure visit to model fish farm.

2ND SEMESTER



PAPER-III: Fisheries Engineering and Technology

Theory:

- Aquaculture Engineering: Selection of site for aquaculture, fish farm-design criteria, construction and maintenance of hatcheries for carps, trout and prawns including design, layout, water supply, aeration systems and their management; construction, maintenance and management of trout farms, cages and pens including site selection, design, layout, dykes, sluices, water supply etc.; materials management-materials used for the construction and operation of the various types of hatcheries, farms and cages, their specifications, quality, procurement and management.
- Feed Mills: Design, layout, equipments, operation and management of feed mill; quality control, storage and marketing of aquafeed.
- Fish harvest technology: Crafts and gears.



- Post-Harvest Technology: Rigor mortis and fish spoilage, Principles and methods of fish preservation, Hygienic handling of fish for processing, Basic requirements for set up of establishments for processing of food products, Quality control & HACCP in fish processing, Value added fishery products, Fishery by-products.



Practical demonstration:

Survey for site selection; use of engineering instruments for measurement and leveling; designing and preparation of plans various farms and hatcheries; fish processing techniques - grading, peeling, cleaning and icing of fish and prawns; Preparation of value-added products; microbial examination of fish products.

Field training:

Fish processing plant to gain knowledge through learning by doing; fish landing centres to gain knowledge on different craft and gears used in fish harvesting; feed mill, model fish farm and hatchery unit to gain knowledge on engineering and quality control.



PAPER-IV: Fisheries Regulation and Management

Theory:

- Fisheries administrative set up at the centre and states: Sphere of responsibilities of the central and state governments/agencies for fisheries development; legislative measures to implement responsible fisheries and aquaculture - FAO Code of conduct for responsible fisheries, Indian Fisheries Act 1897 and subsequent amendments; marine fishing regulations in the coastal states of India - Exclusive Economic Zone Act, Maritime Zone of India Act; Coastal Aquaculture Authority Act, other fishery related laws; fisheries planning over the years; five-year plans; investment in and performance of the fisheries sector; fisheries policies over the different plan periods; sectoral study of capture and culture fisheries; leasing policies for inland water bodies in different states; seed certification, introduction of exotic species; latest exports norms.





- Factors affecting the economics of fisheries: Review at the farm level; costs and returns of the different inland fisheries enterprises, farm and hatchery units; subsidies in fisheries; fish marketing; domestic and export markets for fish and fisheries products; structure and functions of fisheries cooperatives; state fisheries cooperative federations; Roles of NFDB and FISHCOPFED in fisheries and aquaculture development; fisheries financing - role of NABARD, NCDC, SIDBI, SHG, MPEDA, etc.; bankable fisheries technologies; production credit and micro-credit financing; different schemes available for financing fisheries and aquaculture activities; project formulation and implementation.



- Trickle down system of aquaculture extension for rural development; participatory rural appraisal; farm school on AIR; one-stop aqua shop; role of ITK in aquaculture
- Information and communication technology in fisheries: MS-Office; data analysis; presentation; e-governance; internet search engines; e-mail; GIS; remote sensing; FISHNET; AQUAa; Kissan Call Centre; ATIC; Aqua Choupal; Rural Knowledge Centre, etc.
- Fisheries statistics: Measures of central tendency; dispersion; coefficient of variation; sample survey and enumeration; sampling; standard error; design of experiments (CRD and RBD); analysis of variance; present status of inland fisheries statistics.

Practical demonstration:

Tabulation of data; preparation of frequency table, diagrams and graphs from catches and production figures; calculation of mean, median, mode, variance, standard deviation and standard error; analysis of variance; Windows Operation System; exercise on MS-Word, MS-Excel and MS-Power point, internet search engines and e-mails; preparation of posters, charts, models and slides for fisheries extension work; handling of audio-visual equipment.

Field training:

Finfish, shellfish and ornamental fish markets, fishermen cooperative units, MPEDA, NABARD, FISHCOPFED, fisheries departments.



CREDIT AND MARK DISTRIBUTION

Item	First Semester				Second Semester							
	Paper - I		Paper - II		Paper - III		Paper - IV		Dissertation		All India Study Tour	
	Credits	Marks	Credits	Marks	Credits	Marks	Credits	Marks	Credits	Marks	Credits	Marks
Theory	3	60	3	60	2	40	2	40	0	0	0	0
Assignment	1	10	1	10	1	10	1	10	0	0	0	0
Practical demonstration	1	20	1	20	1	20	1	20	0	0	0	0
Field attachment	2	30	2	30	1	15	1	15	3	60	2	30
Total	7	120	7	120	5	85	5	85	3	60	2	30

Semester	Total Credits	Total Marks
First Semester	14	240
Second Semester	15	260

Address for Communication:

Officer in Charge

ICAR-CIFE Kolkata Centre

32-GN Block, Sector-V, Salt Lake City,

Kolkata - 700 091

Phone: +91 33 2357 3893/7265

Fax: + 91 33 2357 3469

e-mail: kolkata@cife.edu.in

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ICAR - Central Institute of Fisheries Education

(Deemed University)

Panch Marg, Yari Road, Versova

Mumbai – 400 061

Phone: +91 22 2636 1446/7/8

Fax: + 91 22 2636 1573

website: www.cife.edu.in

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CIFE Kolkata Centre

32-GN Block, Sector-V, Salt Lake City,

Kolkata - 700 091

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email: kolkata@cife.edu.in