FAT 506 - Fish Breeding and Larviculture

COURSE PARTICULARS

Course Code: FAT 506
Course Title: Fish Breeding and Larviculture
No. of Units: 3
Course Duration: Two hours of theory and three hours of practicals per week for 15 weeks.
Status: Compulsory
Prerequisite: NIL

COURSE INSTRUCTORS

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COURSE DESCRIPTION

This course is designed mainly for students in Fisheries, Aquaculture and related disciplines. The course provides applied training on the production and cultivation of fish seeds (fry, fingerlings and juveniles). This course will impart valuable skill to the students in order to enhance their hands-on production of fish seeds for aquaculture. Topics to be covered include Fish seed production in aquaculture, artificial propagation, selection, rearing and management of broodfish, induced spawning of cultivated fish species in Nigeria. Hormone administration, artificial fertilization, incubation and hatching of eggs. Techniques of larval rearing of fry and fingerlings. Site selection, hatchery equipment and support facilities. Design, maintenance, construction and management techniques of indoor and outdoor hatcheries. Diseases management in fish hatcheries, transportation of fish seeds. Sales and economics of fish seed production, organizing, planning and record keeping in fish hatcheries.

COURSE OBJECTIVES

The objectives of this course are to:

- enable students to cultivate and produce fish seeds (fry, fingerlings and juveniles);
- provide students with necessary skills to select site, design, construct and manage fish hatchery;
- Provide student with knowledge to transport fish seeds and control of diseases in fish hatchery;
- provide students with opportunities to develop fish seeds production skills such as broodstock management, fertilisation and incubation of eggs, larval and fingerlings rearing.

COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course, the student will be able to:
(Knowledge based)

- highlight the importance of fish seeds in aquaculture;
- describe the various broodstock management measures;
- explain the different methods of artificial propagation of fish seeds;
- describe the various techniques of rearing fry, fingerlings and juveniles
- prepare record for fish hatchery;
- understand the various methods of transporting fish seeds;

(Skills)

- Broodstock management;
- use of synthetic and non-synthetic hormones to stimulate maturation and ovulation in fish;
- fertilisation and incubation of fish eggs;
- Rearing of fry, fingerlings and juveniles;
- Selection of site for fish hatchery;
- Design, construction and maintenance of fish hatchery;
- diseases prevention and control in fish hatchery;
- record keeping in fish hatchery;
- transportation of fish seeds

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Class Attendance	5%
Assignments	5%
Practicals	20
Test(s)	10%
Final Examination	60%
TOTAL	**100%**

GENERAL INSTRUCTIONS

Attendance: In this course every student is expected to be in class five minutes before the commencement of lectures and also partake in all practical trainings. Attendance will be taken in all lectures and practical sessions. The records will be kept and used to establish the suitability of the student to sit for the final examination. However, cases of illness or other inevitable cause of absence must be communicated to the course lecturer stating the reason for the absence.

Academic Integrity: Contravention of academic integrity, including dishonesty in assignments, examinations, or other academic performances are forbidden. All cases of academic dishonesty will be reported to the University Management for appropriate sanctions in accordance with the guidelines for handling students' misconduct as spelt out in the Students' Handbook.

Assignments and Group Work: Students are expected to submit assignments as at when due. Failure to submit an assignment as scheduled will earn the student zero for that assignment. Late submission will only be allowed under justifying circumstances, for which the student has notified the lecturer.

Code of Conduct in Lecture Rooms, Laboratories and Fish Farm: Students are expected to attend lectures and practical sessions punctually. Silence must be observed in class. Students should turn off their cell phones during lectures and practical sessions. Food and drinks are not permitted in the laboratories.

READING LIST

[4]Conceicao, L.E.C., Yufera, M., Markridis, P., Morais, S. and Dinis, M.T. (2010). Live Feeds for early life stages of fish rearing. Aquaculture Research, 41:613-640.

[4]Delince, G.A., Campbell, D., Janssen, J.A.L. and Kutty, M.N. (1987). Seed Production. 114p.

[4,5]Gupta, S.K. and Gupta, P.C. (2010). General and Applied Ichthyology (Fish and Fisheries). S. Chand & Co. Ltd., 7361, Ram Nagar, New Delhi-110 055. 1133p.

[2,3]Haylor, G.S. and Mollah, R. (1995). Controlled Hatchery Production of African catfish, *Clarias gariepinus* (Burchell): Influence of Temperature on early Development. Aquatic Living Resources 8:431-438.

[1]Muir, J.F. and Roberts, R.J. (1994). Recent Advances in Aquaculture. Blackwell Publishing Ltd. UK. 238p.

[1,4]Pillay, T.V.R. and Kutty, M.N. (2005). Aquaculture Principles and Practices. Second Edition. Blackwell Publishing Ltd. UK. 624p.

Legend
1- Available in the University Library
2- Available in Departmental/School Libraries
3- Available on the Internet.

4- Available as Personal Collection
5- Available in local bookshops.

COURSE OUTLINE

Week	Topic	Remarks
1	Fish seed production in aquaculture,	During this first class, the anticipation of the students from the course will also be documented. Students will be introduced to the importance of live food fish larviculture.
2	Selection, rearing and management of brood fish	This will involve highlighting the various environmental conditions for the production of finfish larval.
3 & 4	Artificial propagation/induced spawning of cultivated fish species in Nigeria., - Hormone administration, - artificial fertilization, incubation and hatching of eggs.	Practical exercise will involve production and cultivation of fish larval.
5	Techniques of larval rearing of fry and fingerlings.	This will involve explanation on basic principles and practices of larval food production.
6 & 7	Hatchery equipment and support facilities	Students will be taught on the importance of plankton in aquaculture and the differences between *Chlorophycota, Bacillarioppyta, Cyanophycota, Rhodophyta Chrysophta*
		MID-SEMESTER TEST
8 & 9	Design, -maintenance, - construction and management techniques of indoor and outdoor hatcheries.	Practical demonstration will be carried out by the lecturer/Technologist.

10	Diseases management in fish hatcheries,	Students will be divided into groups and given tanks to culture *Dapnia* and *Moina spp.*
11 & 12	transportation of fish seeds.	Students will be taught the biology and ecology of artemia and feeding and enrichment for artemia .
13&14	Sales and economics of fish seed production, - organizing, planning and record keeping in fish hatcheries	Students will prepare and culture their own micro-algae and used the micro-algae to feed their rotifers.
15	REVISION	This is the week before the final examination. At this time, assessment will be done to evaluate how far the students' expectations for the course have been met.