

**COLLEGE OF FISHERIES, KISHANGANJ
BIHAR ANIMAL SCIENCES UNIVERSITY, PATNA**

Lecture Plan

FBT 506 (2+1) Fish Cell Culture

Theory

S. No.	Topic	No. of Classes
1	Introduction to fish cell culture, History and development of fish cell culture, Importance and applications of fish cell culture	1
2	Structure and organization of animal cells	1
3	Biology and characteristics of cultured cells	2
4	Basic requirements for fish cell culture, Cell culture equipment and laboratory facilities	2
5	Culture media and supplements, Basic aseptic techniques	1
6	Establishment of fish cell lines, Maintenance and subculturing of fish cell lines	1
7	Organ and histotypic cultures	1
8	Scaling-up of cell culture	1
9	Applications of fish cell culture and cell lines	1
10	Characterization of primary cultures/cell lines	1
11	Quality control of fish cell lines	1
12	Prevention and assessment of contamination	1
13	Detection and control of microbial contamination	1
14	In vitro cytotoxicity assays	1
15	In vitro genotoxicity assays	1
16	Stem cells and stem cell cultures	1
17	Embryonic stem cells and their applications	1
18	Induced pluripotent stem cells (iPSCs)	1
19	Applications of stem cells in fisheries	1
20	Hybridoma technology and its applications in fisheries	1
21	Principles of cryopreservation, Cryopreservation of fish cell lines, Storage and maintenance of cryopreserved cells	2
Total		24

Practical

S. No.	Topic	No. of Classes
1	General Guidelines for the Cell Culture Laboratory	1
2	Design and Layout of Cell Culture Laboratory	1
3	Cell Culture equipment	1
4	Preparation and Filtration of Cell Culture Medium	1
5	Preparation of Primary Cell Culture	1
6	Subculturing by Trypsinization	1
7	Cell Counting	1
8	Maintenance of Fish Cell Lines	1
9	Cryopreservation and Revival of Cells	1
10	Measurement of Cell Doubling Time	1
11	Cytotoxicity Assessment	1
12	Transfection of Fish Cells	1
	Total	12

Aman Divakar