

Ph.D. Aquaculture (1st Semester)

Course: AQC-606 “Applied Biotechnology in Aquaculture” (1+1) Lecture Plan (Theory)

S. No.	Unit	Topics	Lecture Plan
1	Unit I Introduction	Scope of biotechnology in fisheries and aquaculture research	01
2		Vaccination in fishes	01
3		DNA Vaccines, Subunit Vaccines and Biofilm Vaccines	02
4	Unit II Feed biotechnology	Probiotics, single-cell proteins, nutraceuticals, gnotobiotics	01
5		Recombinant proteins of commercial importance: enzymes, hormones, bioactive compounds, therapeutic proteins	02
6		Antimicrobial peptides and their applications	01
5	Unit III Environmental Biotechnology	Bioremediation	01
6		Biosensors, biofouling, treatment of wastewater, Applications of biotechnological tools	01
7		Transgenic technology	01
8		Recombinant DNA technology	03
9		Monoclonal antibodies, Cell lines and stem cell culture	01
10		DNA markers and MAS	02
11		Biotechnological instrumentation in Aquaculture	01
12	Unit IV Constraints and Limitations	Constraints and Limitations of Biochemical and Molecular Markers; Commercial applications of Fish Biotechnology	01
13		Government regulation of Transgenic fish and Biotechnology products	01
Total			20

Lecture Plan (Practical)

S. No.	Practical	Practical Plan
1	Genomic DNA isolation	02
2	Agarose Gel Electrophoresis	02
3	PCR Amplification	01
4	Cell culture and cell lines	04
5	Development of hybridoma and production of monoclonal antibodies	04
6	Preparation of chromosomes from embryos and young fish	02
7	Ploidy	03
Total		17

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Course Teacher