

### Lecture plan

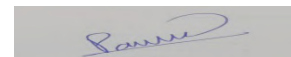
#### FPT 503, APPLIED FISHERIES MICROBIOLOGY, 3 (2+1)

##### Theory

| Sl. No.              | Topic                                                                                                                                                                                                                                                                      | No. of lecture | Name of the Course Instructor  |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------|
| 1.                   | Introductory microbiology: Classification, nature and activity of microbes in fish and fishery products                                                                                                                                                                    | 2              | <b>Dr. Parmanand Prabhakar</b> |
| 2.                   | Microbiology of marine, brackish and freshwater fish/shell fish, microbiology of spoilage and preservation,                                                                                                                                                                | 4              |                                |
| 3.                   | Intrinsic and extrinsic parameters of fish and fishery products that influence growth and survival of microorganisms                                                                                                                                                       | 4              |                                |
| 4.                   | Pathogenic organisms of public health significance in seafood: The etiology of diseases: Conditions for outbreak & prevention.                                                                                                                                             | 3              |                                |
| 5.                   | Food infections by <i>Salmonella</i> , <i>Vibrio parahaemolyticus</i> , <i>V. vulnificus</i> , pathogenic <i>E. coli</i> , <i>Listeria monocytogenes</i> , <i>Campylobacter</i> , virulence mechanisms, their sources, incidences, foods involved and prevention measures. | 6              |                                |
| 6.                   | Fermentation: batch wise and continuous; Important fermented products and methods of production: screening of microorganisms, detection and assay of products of fermentation.                                                                                             | 3              |                                |
| 7.                   | Preparation and use of fermentation media starter culture, preparation and maintenance of stock cultures                                                                                                                                                                   | 2              |                                |
| 8.                   | Microbial injury, microbial biofilms, inactive physiological states (spores and VBNC), unculturable and uncultured bacteria, identification of unculturable groups.                                                                                                        | 4              |                                |
| 9.                   | Advancement in diagnostic protocols: Molecular methods for detection of microbes in fish and fishery products                                                                                                                                                              | 4              |                                |
| <b>Total lecture</b> |                                                                                                                                                                                                                                                                            | <b>32</b>      |                                |

**Practical**

| Sl. No.                | Topic                                                                    | No. of lecture | Name of the Course Instructor  |
|------------------------|--------------------------------------------------------------------------|----------------|--------------------------------|
| 1.                     | Isolation and characterization of spoilage and pathogenic microorganisms | 2              | <b>Dr. Parmanand Prabhakar</b> |
| 2.                     | Sampling for TPC from fresh, iced and frozen fish                        | 2              |                                |
| 3.                     | Selection of bacterial groups in iced fish                               | 2              |                                |
| 4.                     | Isolation of fish spoilage bacteria                                      | 2              |                                |
| 5.                     | Enumeration of halophilic bacteria from salted fish,                     | 4              |                                |
| 6.                     | Fermentation by selected microbes                                        | 2              |                                |
| 7.                     | Assay of products formed; microbial composition of fermented fish        | 2              |                                |
| 8.                     | Conventional detection of pathogens.                                     | 2              |                                |
| 9.                     | Molecular detection of pathogens                                         | 3              |                                |
| <b>Total Practical</b> |                                                                          | <b>21</b>      |                                |



**Dr. Parmanand Prabhakar**  
**(Course Teacher)**