Programme : M.Sc. Marine Biotechnology
Course Code: MBO 185 :
Title of the course : LAB VII - IMMUNOLOGY & MARINE PATHOGENESIS
Number of credits: 3
Effective from: 2019-2020

Course Objectives	This course involves learning techniques to identify reactions in the lab that form the basis for application in immunodiagnostics and also to gain an insight into the evaluation marine	
Learning Outcomes	Key hands-on experience of converting and applying theoretical knowledge to laboratory. Students become familiar with techniques involved in immunology as well as in the study of marine pathogens	
Contents	1. Determination of antibody titer using double immunodiffusion 2. Assesment of similarity between antigens using Ouchterlony's double diffusion test 3. Estimation of antigen concentration using radial immunodiffusion 4. Quantitative precipitation assay 5. DOT ELISA 6. Latex agglutination 7. Immunoelectrophoresis 8. Rocket immunoelectrophoresis 9. Sampling of fish and shellfish for disease diagnosis 10. Identification of bacteria- staining techniques and biochemical techniques 11. Observation of cellular components of fish blood and shrimp hemolymph 12. Isolation and characterization of fungi from fish & slide culture of fungi 13. SDS-PAGE analysis of fish proteins 14. Fish/shrimp cell culture. 15. Identification of fish pathogens using various techniques.	72 hours
References/ Reading	1. Edward J. Noga, (2010). Fish Disease: Diagnosis and treatment, Wiley Blackwell. 2. R.lan Froshney, Culture of Animal Cells, (3rd edition), Wiley-Liss. 3. Thanwal. R., (2014)A Handbook of Diseases, Astha Publisers & Distributors. 4. Bullock, G.L.,(2014) Diseases of Fisheried . Narendra Publishing House . 5. Inglis, V.,(2013) Bacterial Diseases of Fish , Wiley Publications	