Programme: M. Sc. (Marine Sciences)
Course Code: MSO 366 **Title of the Course: Marine Pollution Practical**
Number of Credits: 02
Effective from AY: June2018-19

Prerequisites for the course:	Marine Chemistry and Marine Biology	
Objective:	1. The objective of this course understands the concentration of various pollutants in the seawater and their effect on marine life. 2. The analyses of BOD and COD are used to understand the impact organic pollution on water bodies. 3. Different pollutants like Fluoride and Hydrogen sulphide in sea water it greatly influence the quality of water for marine life including man.	
Content:	**Module – I** 1. Determination of dissolved oxygen in polluted waters. (6 hrs; Ref1) 2. Determination of biochemical oxygen demand in polluted waters. (6 hrs; Ref1) 3. Determination of chemical oxygen demand in polluted waters. (6 hrs; Ref2) 4. Determination of fluoride. (6 hrs; Ref3) 5. Determination of hydrogen sulphide. (6 hrs; Ref3) **Module – II** 1. Pre-concentration of water by solvent extraction method (6 hrs; Ref 5,6,7) 2. Digestion of biological samples for estimation of toxic metals. (6 hrs; Ref8) 3. Estimation of Cd in polluted waters and biological sample. (6 hrs; Ref 5,6,7)	24 hours 24hour

	4. Estimation of Cu in polluted waters and biological samples. (6 hrs; Ref 5,6,7) 5. Estimation of Pb in polluted waters and biological samples. (6 hrs; Ref 5,6,7)	s
Pedagogy:	Demonstations/ Lab experiments.	
References/ Readings	1. Marine chemistry Vol. 1, 1972 - Martin, D.F, . Academic Press, London. 2. Standard methods for the examination of water and waste water analysis (22nd edition), 2012. Rice, E.W and Bridgewater L. American Public health association, Washington DC. 3. Methods of Seawater analysis, 1983 - Grasskhoff, K, M. Ehrdardt and K. Krembling (eds.), Verlag Chemie, Weinneim. 4. A practical hand book of seawater analysis, 1972 - Strickland, J.D.H, and Parsons, T.R., Fisheries Board of Canada bulletin. (2nd edition). 5. Analytical chemistry of seawater, In Chemical Oceanography, 1975 - Riley, J.P. and Skirrow, G. (eds.), Vol. 3. Academic Press, London. 6. Chemical Analysis. In: Methods in plant Ecology, 1976 - Allen, S. E., Grimshaw, H. M., Parkinson, J. A., Quarmby, C. and Roberts, J.D. 1976. S. B. Chapman (eds.), Blackwell Scientific Publications, Oxford, Chapter 8.	
Learning Outcomes	1. The results of analyses of different pollutants in sea water and marine organisms can be used to assess the effectiveness of existing regulatory activities. 2. These concentrations will be compared with the daily intake of, or exposure to a pollutant by organism/man and it can lead to acceptable concentration of pollutant in organism. 3. These studies would help to regulate the release of a particular pollutant in the marine environment.	