

Programme: M. Sc. (Marine Sciences)

Course Code: MSO 381**Title of the Course:** Marine Ecology Practical

Number of Credits: 02

Effective from AY: June 2018-19

Prerequisites for the course:	Students who have undergone courses of Semester I and II of Marine Sciences.	
Objective:	This course focuses on the methods of estimating water quality parameters and the use of different techniques to address various issues in Marine Ecology.	
Content:	Module – I 1. Estimation of primary production by using light and dark bottle method (6hrs; Ref 7) 2. Estimation of chlorophyll and phaeo-pigments in seawater sample using a spectrophotometric method (6hrs; Ref 14) 3. Quantitative estimation of phytoplankton using stereoscopic microscope and an analysis of sea water sample for phytoplankton cell count (6hrs; Ref 19) 4. Qualitative estimation of zooplankton using stereoscopic microscope and an analysis of sea water sample for zooplankton count (6hrs; Ref 6)	24 hours
	Module – II 1. Quantitative estimation of zooplankton using volume displacement, wet weight and dry weight method (3hrs; Ref 6) 2. Preparation of permanent slides of few phytoplankton and zooplankton using DPX (6hrs, Ref 8) 3. Designing of an experimental set-up to study uptake of oxygen by fish in the laboratory (9hrs; Ref 12) 4. Computation of species diversity (H', J and D) indices using the data of phytoplankton and zooplankton analysis and their implications in ecological studies (6hrs; Ref 2)	24 hours
Pedagogy:	Laboratory techniques, designing of experiments, computations and data interpretations	

References/ Readings	1. A Manual of Chemical and Biological Methods for Seawater Analysis, 1984 - Parsons T.R., Maita T. & Lalli C.M., Oxford and New York: Pergamon Press, 184pp. 2. Population ecology. A unified study of plants and animals, (3 rd Edition), 1996 - Begon M., Mortimer M. & Thompson D.J., Blackwell Science Ltd. 247 pp. 3. Zooplankton Methodology, collection and identification – A field manual, 2004 - Goswami S.C., National Institute of Oceanography, 16 pp. 4. Stomach content analyses - A review of methods and their application, 1980 - Hyslop E.J. (1980), Journal of Fish Biology, 17 :411 – 429. 5. Perspectives in Ecological Theory, 1968 - Margalef R. Chicago: University of Chicago Press, 111 p. 6. Ecological Methodology (2nd ed.), 1999 - Krebs C.J., Benjamin Cummings, 624 pp. 7. Plankton and productivity in the oceans (Vol. 1 & 2), 1983 – Raymont, J.E.G., Pergamon Press. 8. A Simple Method for the Preparation of Permanent Slides from Cell Cultures, <u>Stain Technology</u> (2009), Volume 59, 1984 - <u>Issue 6</u> by <u>Lina Wasserman</u> & <u>Gania Kessler-Icekson</u> , Pages 353-354.	
Learning Outcomes	Ecological methods for evaluation of water quality and assessment of productivity. Also guides to formulate and design the experimental setup to provide insight in the specific issues.	