Programme: M. Sc. (Marine Sciences)
Course Code: MSC 163 **Title of the Course: Marine Biology I**
Number of Credits: 03
Effective from AY: June, 2018-19

Prerequisites for the course:	Degree of Bachelor of Science of this University or an examination of any other University recognized as equivalent.
Objective:	This course addresses the introduction of Marine life, biological processes to elucidate the ecosystem function. Further, it also provides an insight on larval ecology, trophic levels and their role in supporting life in marine environment.

Content:	Introduction to marine biology, history, classification, theories, hypothesis testing; life and non life, Origin and evolution of life, life processes, abio-genesis, theories of natural selection, models and hypothesis of organic evolution, primordial soup hypothesis, organic molecules, chemical evolution, iron sulfide and black smoker's theory, RNA world hypothesis, theory of evolution and panspermia.	12 hours
	Biotic structure, Invertebrate larvae and their biology, larval types and strategies, theories of bi-phased life history, Marine and coastal environment, biological zonation, inter-tidal ecosystem, rocky, sandy and protected sand flats, zonation pattern, physical and biological factors and processes affecting biotic communities and their adaptations.	12 hours
	Sea as a biological environment, physiological changes, regulators and conformers, scope for growth, temperature and metabolic rates, comparison among marine and terrestrial environment, Organic matter production, Marine primary productivity, photo-autotrophic production, mechanism, light and dark reaction, intermediate products, role of pigments, methods of assessment, factor and processes affecting primary productivity, transformation of organic matter, vertical profile of primary productivity and SCM, turbulence and MLD.	12 hours
Pedagogy:	lectures/ tutorials/assignments/self-study	
References/ Readings	1. Marine Biology. 8th Edition – 2009 Castro, P. and Huber, M. McGraw Hill Education. 461 pp. 2. Introduction to Marine Biology. 4th Edition. – 2012, Krleskint, G., Turner, R., Small, J., Cengage Learning. 576 pp 3. Biological oceanography 1999 – Lalli, C.M., Elsevier Ltd. 4. Oceanography: The past, 1980 – Sears, M and Merimann D. (Eds)., Springer- Verlag 5. Elements of Marine ecology (4th edn) 1982 – Tait, R.V. and Dipper, F. Butterworth - Heinemann 6. An introduction to Marine Sciences, 1988 – Meadows, P.S. & Campbell, J.J., Springer Science & Business Media 7. Textbook of Marine Ecology, 1980 – Nair, N.B. &Thampy, D.M., Macmillan, 352 pp. 8. Marine Biology, 1984, Thurman, H.V. and Webber, H.H., Harper Collins Publishers 9. Methods in Marine Zooplankton Ecology, 1984 Omori, W. and Ikeda, T. Wiley 10. Methods for the study of Marine Benthos, 1984 – Holme, N.A. &Melntyre, A.D. Blackwell Scientific Publications 11. The Ecology of Rocky Coasts, 1964 – Lewis, J.R. English Universities Press 12. The shore environment, 1980 – Irvine, J.H., Price, D.E.C. and Farnham, W.F. Systematics Association 13. Life between tidemark on rocky shores, 1972 – Stephenson, T.A. & Stephenson, A. W. H. Freeman 14. The invertebrates (3rdth Edn.), 1986 – Barnes, R.S. K. Blackwell Science 15. Zooplankton Methodology Manual, 2000 - Harris, R., Wiebe, P., Lenz, J., Skjoldal, H.R., Huntley, M. (Eds), ICES Academic Press, San Diego, pp. 68	
Learning Outcomes	Provides fundamental knowledge related to marine life and processes and also the strategies adopted by these groups for survival in marine environment.	