

Programme: M. Sc. (Marine Sciences)

Course Code: MSO 380 **Title of the Course:** Marine Ecology

Number of Credits: 04

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 develops concepts in different aspects of marine ecology processes and ecosystem function associated with marine life.	
Content:	Marine ecosystems (pelagic and benthic ecosystem of open seas), Mangrove ecosystem species composition, distribution, adaptations, primary productivity, heterotrophic production, secondary communities and energy flow, Coral reef – formation, calcification, reef morphology, nutrition and symbiosis, Salt marsh ecosystem – species composition, distribution, nutrient dynamics, primary productivity and ecological processes and fate of salt marsh plant, Deep sea – sampling, constraints, adaptations.	12 hours
	Marine food chains – role of DOM, POM, microbial loop, heterotrophic flagellates, bacteria, viruses in trophic transfer, microhabitats and recent concept of ecological efficiency, community structure diversity and ecosystem function, factor regulating community structure, Fish migrations and spawning.	12 hours
	Ecology of harmful algal blooms – causative species, bloom formation and dynamics, propagation, decomposition and its impact on ecosystem function, behavioral adaptations, physical processes, cyst and dormant stages, shellfish poisoning and human health.	12 hours
	Fouling communities – larvae and their adherence to substratum, mechanism, implications and control, Introduced species and marine bio-invasion – concept, alien species and effect on local ecosystem function, Benthic autotrophic production and metabolism.	12 hours
Pedagogy:	lectures/ tutorials/assignments/self-study	

References/ Readings	<ol style="list-style-type: none">1. Marine Ecology: Processes, systems and impacts (2nd edition), 2011 - Kaiser, J.M., OUP Oxford. 501 pages.2. Trait, R.V., 2013. Elements of Marine Ecology (3rd Edition), 2013 – Trait R. V., Elsevier. 366 pages3. Marine biology: An ecological approach (6thed), 1988 – Nybbakken, J.W. and Bertness, M. D. Pearson/Benjamin Cummings4. Biological Oceanographic Processes, 1984 – Parsons, T.R., Pergamon Press.5. Marine Biological Processes (2nd ed), 1995 - Valiela, I., Springer Verlag Press.6. Plankton and productivity in the oceans (Vol. 1 & 2), 1983 – Raymont, J.E.G., Pergamon Press.7. Deep sea demersal fish and fisheries, 1997 – Merrett, N.R. Chapman and Hall, Springer8. Reef fisheries, 1996 – Polunin, R.S.V. Springer Science & Business Media9. Marine Ecological Processes, 1995 – Valiela Evans, Springer Verlag, New York, 686.	
Learning Outcomes	Explain the marine biological processes in different ecosystems including tropical and polar waters. Also addresses marine ecological issue like HAB, sediment communities and processes related to these ecosystems.	