Programme: M. Sc. (Marine Sciences)
Course Code: MSO 269 Title of the Course: Aquaculture Practical
Number of Credits: 02
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 aims to identify the cultivable species, their reproductive biology and methods of estimation of water quality parameters for cultivation. It also provides an exposure to the students for the demonstration of commercial practices of culture and hatchery practices.	
Content:	**Module – I** 1. Methods of estimation of dissolved oxygen, BOD, suspended solids, dissolved and particulate organic carbon and ammonia (14 hrs; Ref 1& 2) 2. Identification of cultivable fishes of shrimps, mussels, oysters, fish, crabs and sea weeds (4 hrs, Ref 3) 3. Reproductive system of shrimp (2 hrs; Ref 4), 4. Identification of larval stages of shrimp of commercial importance (4 hrs; Ref 3). **Module – II** 1. Visit to shrimp hatchery and grow out farms for demonstrations (12 hrs, Ref 3 & 4) 2. Fabrication of biological filter in aquarium tank (6 hrs, Ref 5) 3. Fabrication of raft, transplantation of spat for mussel culture (6 hrs).	24 hours 24 hours
Pedagogy:	Field visits, laboratory analysis and identification	

References/ Readings	1. Methods of Seawater Analysis, 1983, 1999 – Grasshoff, K., Ehrhardt, M. and Kremling, K.;Verlag Chemie, Weinheim. 2. A Manual of Chemical and Biological Methods for Seawater Analysis, 1984 – Parsons, T. R., Maita, Y. and Lalli, C. M.; Pergamon Press, Oxford. 3. FAO species identification guide for fishery purposes. The living marine resources of the Western Central Pacific, *1988b* - Carpenter K.E. & Niem V.H. *Volume 2.Cephalopods, crustaceans, holothurians and sharks*. (Food and Agricultural Organization, Rome), pp. 687-1396. 4. Crustacean aquaculture, 1983 Mckey, J.P. CRC series. 5. Design and Selection of Biological Filters for Freshwater and Marine Applications, 8-11 November 2004, Honolulu, Hawaii, Edited by C. S. Lee Volume 34, Issue 3, Pages 141-420	
Learning Outcomes	Provides scope to understand various biological aspects of cultivable species and on sight experience of the operation of hatchery and culture systems.	