**Name of the Programme:** M. Sc.Marine Sciences
**Course Code:** MSC 513
**Title of the Course:** Estuarine and Coastal Biology Practical
**Number of Credits:** 01
**Effective from AY:** 2022-23

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| **Prerequisites for the course:** | Core courses offered in Semester I | |
| **Objective:** | Identification of commonly occurring marine organisms using morphological features. | |
| **Content:** | Identification of mangroves, their lifecycle and few biological characteristics (4 hours; References 1, 2, 3)<br>Identification of hard corals and a few biological characteristics (6 hours; References 4, 5)<br>Identification of few commonly occurring teleosts (ray-finned fishes) and their biological characteristics (8 hours; References 6, 7, 8)<br>Identification of brachyuran crabs using morphology and gonopod characteristics, sex determination and their biological importance (4 hours; Reference 9)<br>Identification of prawns and shrimps using external characteristics, sex determination and biological aspects (4 hours; Reference 9)<br>Morphometric measurements and meristic counts of the Indian Mackerel, *Rastrelliger kanagurta* (4 hours; Reference 10) | 30 hrs. |
| **Pedagogy:** | Identification of sampling devices, marine flora and fauna | |
| **References/ Readings:** | 1.Untawale, A.G. (1985). Mangroves of India: present status and multiple use practices, UNDP/UNESCO Regional Mangrove Project, pp 67.<br>2.Dhargalkar, V.K., D'Souza, R., Kavlekar, D.P., Untawale, A.G.(2014). *Mangroves of Goa.* Forest department, Government of Goa and Mangroves society of India, Goa, India.<br>3.Hogarth,P.J. (2015).*Thebiologyofmangrovesandseagrasses*.OxfordUniversitypress.<br>De, K., Venkataraman, K., Ingole, B. 2019. The hard corals (Scleractinia) of India: a revised checklist. *Indian J Geo-Marine Science*, *40*(10):1651-1660.<br>4.Venkataraman, K., Satyanarayana, Ch., Alfred, J.R.B., Wolstenholme, J. (2003). *Handbook on hard corals of India*.Kolkata: Zoological Survey of India.<br>FAO species identification guide for fishery purposes. The living marine resourcesof the Western Central Pacific*., 1999b* - Carpenter K.E. & Niem V. H., *Volume 4.Bony Fishes Part 2 (Mugilidae to Carangidae)*. (Food and Agricultural Organization, Rome), pp. 2069–2790.<br>5.FAO species identification guide for fishery purposes. The living marine resources of the Western Central Pacific*., 2001a* - Carpenter | |

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| | K. E. & Niem V. H. *Volume 5. Bony Fishes Part 3 (Menidae to Pomacentridae)*. (Food and Agricultural Organization, Rome), pp. 2791– 3380.<br>6.FAO species identification guide for fishery purposes. The living marine resources of the Western Central Pacific*., 2001b* - Carpenter K. E. & Niem V. H., *Volume 6. Bony Fishes Part 4 (Labridae to Latimeriidae), estuarine crocodiles, sea turtles, sea snakes and marine mammals*. (Food and Agricultural Organization, Rome), pp. 3381– 4218.<br>7.FAO species identification guide for fishery purposes. The living marine resources of theWestern Central Pacific*, 1988b* - Carpenter K. E. & Niem V. H. *Volume 2. Cephalopods, crustaceans, holothurians and sharks*. (Food and Agricultural Organization, Rome), pp. 687– 1396.<br>8.Bhendarkar, M.P, Naik, S.D, Ramteke, M.H, Raut, S.M., Swain, S. (2014). Morphometric and Meristic studies of Indian Mackerel, *Rastrelliger kanagurta* (Cuvier, 1817) off Southern Coast of Maharashtra, India. *Ecology Environment and Conservation*, *20*(4), 1705– 1708. | |
| **Course Outcome:** | 1. The course will provide an insight on morphological features of marine flora and fauna and their application in identification of commonly occurring species. | |