

MARINE BIOLOGY
(UG DEGREE STANDARD)

SUBJECT CODE: 293

UNIT- I: PHYSICAL OCEANOGRAPHY

Major divisions of marine environment; Physical properties of seawater - Thermal properties of seawater; properties of Waves: Types of waves and properties of ocean waves; Tides - Origin of the tides; Wind and Ocean circulation – Types of currents.

UNIT – II: CHEMICAL OCEANOGRAPHY

Chemical properties of seawater : Concept of chlorinity and salinity of seawater; Solubility of gases in seawater: Non reactive gases - Minor reactive gases; Organic matter: Dissolved and Particulate organic matter - Sources and classification; Origin, distribution of nutrients cycle and their significance.

UNIT – III: BIOLOGICAL OCEANOGRAPHY

Primary and Secondary Productivity of the coastal environment; Phytoplankton and Zooplankton: Classification, distribution, their role in coastal ecosystems and adaptations. Primary production and factors affecting primary production.

UNIT – IV: MARINE ECOLOGY AND POLLUTION

Community ecology; Intertidal ecology - Benthic, pelagic and deep sea ecology - Food Chain and food web; Food pyramid; Animal association in the marine environment. Types of marine pollution, source and their biological effects.

UNIT – V: BIODIVERSITY

Biodiversity - Genetic diversity - Species diversity - Ecosystems diversity - Biodiversity changes in time and space - Need for conservation and conservation strategies; IUCN categorization ; Biosphere reserves and National parks; Climate Change and Global warming.

UNIT – VI: COASTAL VEGETATION

Coastal vegetation : Intertidal and sublittoral; seaweeds, seagrass and saltmarshes; mangroves – Distribution and adaptations; Economic importance of mangroves.

UNIT – VII: MARINE MICROBIOLOGY

Marine microbial environment – Benthic & littoral zone, saltpan, mangroves and estuarine microbes, microbial loop in ocean food webs – Marine microbial community - Bacteria, Fungi, Protozoa. Marine Extremophiles.

UNIT – VIII: INVERTEBRATES, PROCHORDATES AND VERTEBRATES

Principles and classification; Marine invertebrates and vertebrates - Their biology - Physiology, locomotion, nutrition and reproduction. Adaptive radiations of bony fishes and elasmobranchs. Seaturtles and Mammals.

UNIT – IX: CAPTURE FISHERY

Commercial marine fishery resources of India and Tamilnadu - Finfishes (Elasmobranch - Oil Sardine, Mackerel, Bombay duck), crustaceans (shrimp, lobster and crab) and molluscs.

UNIT – X: MARICULTURE

Importance of Coastal aquaculture- Present status - Different culture methods; Open sea farming: Cages, pens - Raft – Raceways. Potentialities and socio-economic problems of aquaculture.