

BSS454 AQUATIC BIOLOGY

Course Outcomes:

After successful completion of the course, students will be able to :

- CO 1. Gain theoretical knowledge in hydrobiology, abiotic factors and aquatic organisms.
- CO 2. Know how aquatic organisms adapted during the course of evolution.
- CO 3. Comprehend the importance of estuaries, mangroves, marshes, tidal flats, coastal wetlands and coral reef community.
- CO 4. Realize the impacts of aquatic pollution and how to use the biological strategies to prevent the pollution.
- CO 5. Know the basic concepts of biological productivity of both flora and fauna.
- CO 6. Gain the knowledge how to collect, separate and classify planktons, and their importance.
- CO 7. Appreciate the economic importance of hydrophytes and halophytes.

UNIT I (13 hrs)

Hydrobiology: Properties of water including sea water. Hydrological cycle. Ocean water movement - El nino effects. Structural and functional adaptations of aquatic organisms to the abiotic factors such as temperature, light, salinity, pressure and dissolved oxygen.

UNIT II (13 hrs)

Aquatic ecosystems: Freshwater habitats - wetland and swamps, tank/pond, river, lake/reservoir. Physico-chemical conditions and biological composition of estuaries, mangroves/marshes, tidal flats and coastal wetlands. Marine habitats - types of sea shore environmental parameters and adaptations of pelagic, benthic and deep sea organisms. Coral reef community. Aquatic pollution: characteristics, sources and types; eutrophication, red tide, shellfish poisoning; **Biological control of aquatic pollution.**

UNIT III (13 hrs)

Biological productivity: Basic concepts. Factors affecting productivity, measurement of productivity: Leibig's law of minimum, Shelford's law of tolerance. Production and distribution of aquatic fauna; Planktonology-classification, distribution, collection and separation of plankton; blooms/ swarms of plankton and algal production. Hydrophytes - types, adaptations, distributions and economic importance. Halophytes - types, adaptations, economic importance. **Sea weed -types and their distribution and economic importance.**

References:

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4. Hutchinson, G.E. (1967). A treatise on Limnology. John Wiley and Sons, New York.
5. Brown, J., Colling, A. (1989). Sea water: Its composition properties and behaviour. Open University Publications, Pergamon Press, England.
6. Maitland, P.S. (1978). Biology of Freshwater, Blockie, Glasgow and London, U.K.
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9. Nybakkan, J.N. (1982). Marine Biology – An ecological approach. Harper and Raw Publ., New York.
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