

Course Code : ENCM 42604
Title : Ecology and Management of Wetlands
Pre-requisite : ENCM 21533
Co-requisite : None
Status : Compulsory, Theory cum Practical

Learning outcomes:

After completion of the course unit the student will be able to;

- discuss the values and functions of different types of wetlands,
- discuss the effects of biological and physico-chemical factors on wetland community development and wetland properties,
- identify potential threats to wetlands and propose appropriate wetland management strategies,
- discuss the importance of wetland restoration, constructed wetlands, and sustainable utilization of wetlands, and
- demonstrate skills in identifying wetlands for conservation, wise use of wetlands and wetland restoration.

Course contents:

Definition of wetlands, Wetland classification, Wetland hydrology, Wetland soils, Wetland vegetation and adaptations, Wetland biogeochemistry with special reference to the importance of N, C, S, P, Fe and Mn transformations in wetlands, Wetland zonation, Wetland functions, Threats to wetlands: Natural and anthropogenic impacts on wetlands, Factors affecting community development in wetlands: Biological diversity of wetlands, Rank abundance curves, Factors affecting animal and plant diversity in wetlands, species pool hypothesis, Hydrology as a factor controlling wetland properties, Wetland fertility and primary productivity, Effects of disturbances on wetlands, Effects of herbivory on wetlands.

Wetland restoration, Constructed wetlands: Types of constructed wetland systems for use in various landscapes, Hydrologic and ecological features of constructed wetlands, Design and optimization to treat a wide range of waste waters, Monitoring and assessment for water treatment efficiency, Potential uses of biomass produced in constructed wetlands, Case studies on wetland restoration projects and constructed wetlands, Wetland conservation and management, Sustainable use of wetlands.

Field studies on characteristics of selected wetlands and identification of potential threats and impacts.

Method of teaching and learning:

A combination of lectures, field studies, assignments, self-studies, computer based learning, and small group discussions.

Assessment:

In-course assessment and end of semester examination.

Recommended reading:

1. Keddy, P. A. (2010). Wetland Ecology: Principles and Conservation. Cambridge University Press.
2. Mitsch, W. J. & J. G. Gosselink (2007). Wetlands. Wiley.
3. Selected current review papers published by reputed publishers.
4. Wetland site report series, Central Environmental Authority, Sri Lanka.