

BACHELORS WITH ENVIRONMENTAL SCIENCE AS MAJOR (CT-3)

6th SEMESTER

EVS622J3 ENVIRONMENTAL SCIENCE_ TERRESTRIAL ECOLOGY

CREDITS: (THEORY-4, PRACTICAL -2)

COURSE LEARNING OUTCOME: To give a broad outline and deep understanding of different terrestrial systems, components and interactions. This course shall help students in understanding that the structure and function of terrestrial ecosystems is fundamental to their conservation. This course provides a conceptual framework for understanding the range of the world's terrestrial ecosystems and provides practical field experience with major terrestrial ecosystems.

THEORY (4 CREDITS: 60 HOURS)

UNIT I: TERRESTRIAL ECOSYSTEMS

Distribution of terrestrial ecosystems; Community structure and functioning; Patterns of terrestrial primary production; Terrestrial decomposition; Carbon sequestration storage and utilization

UNIT II: FOREST ECOLOGY

Major forest types of the world; Major Forest types in India; Forest community structure and function; Forest biota; Deforestation and global climate change

UNIT III: DESERT ECOLOGY

Introduction to world deserts; Classification of desert; Ecological complexity of desert ecosystems; Ecological adaptation of desert flora and fauna

UNIT IV: GRASSLANDS AND AGROECOSYSTEMS

Major grassland types of the world; Grassland types in India; Management of grassland ecosystems
Concept of agroecosystems; Role of biodiversity in agroecosystems

PRACTICALS: (2 CREDITS) 60 HOURS

1. Estimation of primary productivity in terrestrial ecosystems
2. Estimation of light intensity in different ecosystems
3. Determination of DBH of tree species in a forest and calculation of the basal area
4. Determine carbon sequestration potential of any terrestrial ecosystem in your area
5. Explore insect biodiversity and population dynamics by using sweep nets, pitfall traps, or insect traps in different habitats.
6. Study bird populations and their distribution in different terrestrial ecosystems
7. Study the impact of grazing on plant community
8. Field visit to the local agricultural area for evaluation of IPM strategies

SUGGESTED READINGS:

1. Ecology, Environmental Science and Conservation J.S Singh et al. 2014. S. Chand Publication, New Delhi.
2. Principles Of Terrestrial Ecosystem Ecology, F. Stuart Chaplin et al. 2011. Springer.
3. Forest Ecology, Burton V. Barnes. 1998. Wiley.
4. Forest Ecology, J.B Lal. 2011. Natraj Publisher.
5. The Biology of Agroecosystems, Nicola P. Randall et al. 2019. Oxford university press.
6. Grasses And Grassland Ecology, David J Gibson. 2009. Oxford university press.
7. The Biology of Grasslands, Brian J Wiley. 2018. Oxford university press.
8. Dispersal Biology of Desert Plants (Adaptations of Desert Organisms), Karen van Rheede van Oudtshoorn et al.2010. Springer-Verlag Berlin and Heidelberg GmbH & Co. K.