23SC805 FOREST RESOURCE CONSERVATION & MANAGEMENT 4 0 0 4

Course Outcome (COs)

From this course, student will be familiarized with the various concepts related to Forest Resource Conservation and Management.

1. To get the student familiarize with Forest resource management.
2. To understand the basics of forest resource conservation.
3. To know about the different forestry practices all over the world.
4. To train the student with the various aspects of soil conservation and watershed management
5. To get an overview of the forest ecology and wildlife biology.

Syllabus

Unit I Forest Working Plan (12h)

Forest planning, evaluation and monitoring tools and approaches for integrated planning; multipurpose development of forest resources and forest industries development; working plans and working schemes, their role in nature conservation, bio-diversity and other dimensions; preparation and control. Divisional Working Plans, Annual Plan of Operations.

Unit II Conservation of Wildlife and biodiversity (12h)

IUCN categories of protected areas; history of wildlife management in India; protected areas system in India- national parks, wildlife sanctuaries, conservation reserves and community reserves; special category areas: biosphere reserves, World heritage sites, project tiger, project elephant, project snow leopard. Human wildlife conflict & mitigation: Nature, causes and mitigation of depredation by wild animals: case studies from India and abroad; wild animal barriers, role of communities in management of conflict situations, crowd control, role of district administration.

Unit III Forest Soils, soil Conservation and Watershed Management (12h)

Forests Soils: Classification, factors affecting soil formation; physical, chemical and biological properties.

Soil conservation – definition, causes for erosion; types–wind and water erosion; conservation and management of eroded soils/areas, wind breaks, shelter belts; sand dunes; reclamation of saline and alkaline soils, water logged and other waste lands. Role of forests in conserving soils. Role of micro-organisms in ameliorating soils; N and C cycles, VAM. Watershed Management – Concepts of watershed; role of mini-forests and forest trees in overall resource management, forest hydrology, watershed development in respect of torrent control, river channel stabilization, avalanche and landslide controls, rehabilitation of degraded areas; hilly and mountain areas; watershed management and environmental functions of forests; water-

harvesting and conservation; ground water recharge and watershed management; role of integrating forest trees, horticultural crops, field crops, grass and fodders.

Unit IV. Forest Protection & Wildlife Biology (12h)

Injuries to forest – abiotic and biotic, destructive agencies, insect-pests and disease, effects of air pollution on forests and forest die back. Susceptibility of forests to damage, nature of damage, cause, prevention, protective measures and benefits due to chemical and biological control. General forest protection against fire, equipment and methods, controlled use of fire, economic and environmental costs; timber salvage operations after natural disasters. Role of afforestation and forest regeneration in absorption of CO2. Rotational and controlled grazing, different methods of control against grazing and browsing animals; effect of wild animals on forest regeneration, human impacts; encroachment, poaching, grazing, live fencing, theft, shifting cultivation and control.

Unit V Forest Ecology (12h)

Biotic and aboitic components, forest eco-systems; forest community concepts; vegetation concepts, ecological succession and climax, primary productivity, nutrient cycling and water relations; physiology in stress environments (drought, water logging salinity and alkalinity). Forest types in India, identification of species, composition and associations; dendrology, taxonomic classification, principles and establishment of herbaria and arboreta. Conservation of forest ecosystems. Clonal parks. Role of Ethnobotany in Indian Systems of Medicine; Ayurveda and Unani – Introduction, nomenclature, habitat, distribution and botanical features of medicinal and aromatic plants. Factors affecting action and toxicity of drug plants and their chemical constituents.

Evaluation and Grading

Internal *(Weightage = 50%)*		**External** *(Weightage = 50%)*	**Total**
Components	*Weightage*	Examination = 100 Marks	Internal + External = 100
First Periodical	15%		
Second Periodical	15%		
Assignments / seminar / class test	20%		

References

1. Brown,A.A. and Davis K.P. 1973. Forest fire control and uses. McGraw-Hill Book Co. New York

2. Dan B and Richard F.F. 2002. Ecology and Management of Forest Soils, Wiley-Blackwell

3. Goutam K.S, and Subhendu M.2017. Wildlife Biology an Indian Perspective. PHI Learning Pvt. Ltd.

4. Lai J.B. 1992. Forest ecology. Natraj Publication, Dehradun

5. Manikandan K and Prabhu S. 2015. Indian Forestry. Jain Brothers , Newdelhi

6. Negi S.S. 1995. Hand book of forest protection. International Book Distributor, Dehradun

7. Sinha P.C.1998. Wildlife and Forest Conservation, Anmol Publishing Pvt. Ltd., New Delhi.