

COURSE CODE: ENS-312
COURSE NAME: Natural Resource Management
CREDIT HOURS: Theory = 3 Practical = 0 Total = 3
CONTACT HOURS: Theory = 48 Practical = 0 Total = 48
PREREQUISITE: None
MODE OF TEACHING: Three hours of lecture per week

Course Description:

Course is designed to provide student with the basic understanding of role performed by these natural resources, threats that are associated with them and approaches used for their management. The course will also emphasize on the issues and constraints involved in the management of these resources. Course is designed to provide student with a general overview keeping in view its undergraduate level however special focus will be on Pakistan’s perspective. Other objectives are:

- To provide students with the basic understanding of natural resources we are blessed with and what functions they perform in our lives.
- To investigate the major issues involved in Natural Resource Management in both the global and Pakistani context.
- To develop an integrated approach to the analysis and management of Natural Resources and issues associated with their management.

TOPICS COVERED:

Week#	Topics
1	Introduction: Natural resources, classification of natural resources, basic definitions and concepts (tragedy of the commons, resource degradation, carrying capacity, ecological footprints)
2	Human demands on natural resources, existing situation in world in general while in Pakistan particularly

3	Brief history of natural resource management, sustainable management of natural resources, different approaches to natural resource management, conservation and preservation
4	Community based natural resource management, development of natural resource management plan; needs, requirement, process and contents of the management plan
5	Forest management; forest types and its existing management.
6	Watershed management; Importance, basic principles, methodologies, national example. Wetland management: existing situation, importance, key threats, National wetland policy and brief introduction to Ramsar convention
7	Rangeland management: existing status, importance, threats, causes and methods for its improvement. Rotational grazing, seasonal grazing, National Rangeland policy of Pakistan
8	Livestock management and wildlife management; Management of existing situation at national level, wildlife census, reasons for its decline and its possible remedies, existing management approaches, sustainable/trophy hunting projects and its role in local and national development, national and provincial legislation
9	Midterm Exam – MSE
10	Agriculture resource management; Existing situation of agriculture sector in Pakistan, agriculture products and their share in GDP, problem in agriculture, agriculture chemicals, their pros and cons, national agriculture policy, management options
11	Land use Planning and Management; evolution of land use planning, review of land use plans developed by the various organizations, field visit to develop a land use plan for selected area
12	Energy (coal, hydrocarbon, hydel) and Mineral Resource (Metallic and non-metallic deposits) management
13	Water Resource Management; water conservation at domestic, industrial and agricultural sectors

14	Flood control, drought management, channelization, desalinization, cloud seeding, rain water harvesting and recharge wells
15	Technologies for watercourse improvement and farm layout improvement, laser land leveling, Improve cropping pattern, groundwater zoning and skimming wells
16	Technologies for watercourse improvement and farm layout improvement, laser land leveling, Improve cropping pattern, groundwater zoning and skimming wells
17	Fisheries Management: Types of fishes in Pakistan, existing situation reason for decline and its potential in the national economy, management options
18	End Semester Exam

Text and Material:

1. Basics of forestry and Applied Sciences, Concepts and Theory. Masood A.A Qureshi, 3rd Ed Vol-1, A-one Publishers.
2. Environment: Problems and Solutions. Asthana, D. K & Asthana, M, 5th Ed, S. Chand & company LTD.
3. Environmental Science: Earth as a Living Planet. Botkin, D., & Keller, E, 9th Ed. John Wiley and Sons 2014.
4. Environmental Economics and Natural Resource Management by David A. Anderson, Routledge; 5th edition (2019).
5. Natural Resource Management Reimagined: Using the Systems Ecology Paradigm (Ecology, Biodiversity and Conservation) 1st Edition by Robert G. Woodmansee, John C. Moore, Dennis S. Ojima, Laurie Richards, Cambridge University Press (2021).

ASSESSMENT SYSTEM:

Theoretical/Instruction	100%
Assignments	10%
Quizzes	15%

Mid Semester Exam	25%
End Semester Exam	50%

Practical Work	0%
Lab Attendance	0%
Lab Report	0%
Lab Quiz	0%
Lab Rubrics	0%
