

Course Outcome (COs)

From this course, student will be familiarized with the various concepts related to Forestry and Environmental Sciences.

1. To get the student familiarize with different aspects of forestry.
2. To understand the basics of silvicultural systems and practices.
3. To know about the different forestry practices all over the world.
4. To train the student with the basics of Joint Forest Management and Tribology
5. To get an overview of the international conventions and protocols for the protection of environment

Syllabus**Unit I Silviculture****(12h)**

General Silvicultural Principles: Ecological and physiological factors influencing vegetation, natural and artificial regeneration of forests; methods of propagation, grafting techniques; site factors; nursery and planting techniques, nursery beds, poly-bags and maintenance, water budgeting, grading and hardening of seedlings; special approaches; establishment and tending.

Unit II Silviculture-Systems**(12h)**

Clear felling, uniform shelter wood selection, coppice and conversion systems, Management of silviculture systems of temperate, subtropical, humid tropical, dry tropical and coastal tropical forests with special reference to plantation silviculture, choice of species, establishment and management of standards, enrichment methods, technical constraints, intensive mechanized methods, aerial seeding, thinning.

Unit III Silviculture – Mangrove and Cold desert**(12h)**

Mangrove: Habitat and characteristics, mangrove, plantation-establishment and rehabilitation of degraded mangrove formations; silvicultural systems for mangrove; protection of habitats against natural disasters. Cold desert- Characteristics, identification and management of species.

Unit IV Agroforestry, Social Forestry, Joint Forest Management and Tribology (12h)

Agroforestry – Scope and necessity; role in the life of people and domestic animals and in integrated land use, planning especially related to (i) soil and water conservation; (ii) water recharge; (iii) nutrient availability to crops; (iv) nature and eco-system preservation including ecological balances through pest-predator relationships and (v) Providing opportunities for enhancing biodiversity, medicinal and other flora and fauna. Agro forestry systems under

different agroecological zones; selection of species and role of multipurpose trees and NTFPs, techniques, food, fodder and fuel security. Social/Urban Forestry : Objectives, scope and necessity; peoples participation. JFM - Principles, objectives, methodology, scope, benefits and role of NGOs. Tribology: Tribal scene in India; tribes, concept of races, Principles of social grouping, stages of tribal economy, education, cultural tradition, customs, ethos and participation in forestry programmes.

Unit V . Environmental Conservation and International Conventions (12h)

Pollution: Types, Global warming, green house effects, ozone layer depletion, acid rain, impact and control measures, environmental monitoring; concept of sustainable development. Role of trees and forests in environmental conservation; control and prevention of air, water and noise pollution. Environmental policy and legislation in India. Environmental impact Assessment

International Conventions: Relevant provisions of Kyoto protocol, global warming, climate change, Convention on biodiversity, United nations Convention on Climate Change, United Nations Forum on Forestry, important forest related international instruments, REDD Plus

Evaluation and Grading

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

References

1. Chundawat B.S and Gautam S.K. 1999. A textbook of agroforestry. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.
2. Davis, L.S. and K.N. Johnson. 1987. Forest management. Third Edition. McGraw Hill Book Company, New York.
3. Khanna L.S. 1991. Principles and Practice of Silviculture, Khanna Bandhu Publisher, Dehradun
4. Khanna L.S and Chaturvedi A.N. 2012. Hand book of Forestry-Volume I. Bio-Green books, Dehradun
5. Ram Prakash. 1986. Forest management, International Book Distributor, Dehradun.
6. Ramprakash and Khanna L.S. 1991. Theory and practice of silvicultural systems. International Book distributor, Dehradun

7. Tiwari K.M. 1988. Social forestry and rural development. International Book Distributor, Dehradun

ACTIVITIES/ CONTENT WITH DIRECT BEARING ON EMPLOYABILITY/ ENTREPRENEURSHIP/ SKILL DEVELOPMENT (based on NAAC Criteria):

The learner will get a clear understanding of the concepts and ideas regarding the technical and theoretically relevant area which is explored in the course. This course will equip the learner to build a career as a researcher and academician in Chemical/Environmental Sciences.