

FORESTRY

1. Principle of Forestry : Introduction of forestry : Forest and ecology, Tree study, Land and forest products measurements, Forest and its environment, Forest management, Wood characteristics, Identification and uses, Wood for energy.

2. Principle of Wildlife conservation : Concepts of wildlife and history of wildlife preserve and wildlife management and relationship with allied subjects. Wildlife value and conflicts Aesthetic economic, scientific, ecological, religious recreational land use priorities, crop destruction, disease.

Carriers, studies of important, rare and endangered species of India and steps taken for their preservation; sanctuaries, national park, biospheres reserves and zoological parks of the country, fundamental of morphology, classification, development, habit damage and control of insects attacking trees, with emphasis on these injuring trees and forest of the region.

3. Forest Measurements : Theory of measurement and estimation procedure use of mensurational instrument, measurement of diameter girth, height, form, bark thickness, mathematical and statistical principles and technique used to determine the volume and growth of tree and strand introduction of static and dynamic, forest models defining what they are and how they might be used and how they are developed, Assessment of growing stock and determination of yield.

4. Dendrology : Taxonomy and its significance, Brief history of classification system, plants nomenclature, importance, history international code of botanical nomenclature, plant geography, introduction, geography and relationship and plant distribution, physiographic are and their taxonomy. Modern trends in plant taxonomy, chemotaxonomy, palynology, numerical taxonomy, cyto-taxonomy, systematic botany of Indian forest trees and shrubs. criteria of identification, reproductive biology of important trees and shrubs.

5. Silviculture I (Nursery management) : Biology of seed production by forest trees, forest trees seed, collection, extraction, storage and testing germination growth seedling eco-physiology. Nursery location and design consideration-soils aspect of nursery management control of grasses and weeds, types of nursery beds and their protection, seeds beds and shading method of irrigation, use of chemical types of containers, direct sowing vs transplanting transplant raised from stumps cutting. Evaluation of seedling quality.

6. Forest Ecology and Forest Fires : Basic ecological principles and concepts scope and importance of ecology in conservation of natural resources, land use, forestry, grassland management and wildlife-ecology and its relation to other sciences, Eco-system components, the food chain, tropic structure and ecological pyramids, forest environment ; Forest biotic and biotic components, their interrelationship and importance in forest ecology, interaction of different environmental factors, principles of limiting factors ecological indicators, biotic community concepts. Life form structure and physiognomy concepts of ecological dominance, competition, tolerance aggression seral and climax communities, ectones and edge effect, vegetation dynamic auto-ecology, growth requirement of species competition moisture requirements and development, ecological productivity, environmental pollution.

Fire related syncology and auto-ecology of dominant species of forest and rangeland habits impact of fire on vegetation succession, effect of fire on soil nutrient cycling, forest development, natural role of fire in forest prescribed burning, use of fire as a silviculture and hazard treatment tool use land development of fire danger rating system, fuel inventory, fire weather forecast, fire prevention, fire detection system, fire control and suppression procedures.

7. Silviculture (Regeneration Methods) : Theory and practice involved in natural and artificial forest stand regeneration including species growth and silvicultural characteristic, soil/site relationship site evaluation, site preparation methods including mechanical and chemical control of vegetation insects and diseases consideration, methods of insuring desired species composition in stand use of fire reforestation, regeneration by seed, coppice, root suckers sowing/transplanting stumps branch cutting and rhizomes.

8. Silviculture (System) : Economic, Soil and biological analysis of immature and mature stand management alternatives, diagnosis and presentation at intermediate stand treatments, and harvesting systems, cutting System and culture operations including clear felling, shelter wood, selection and coppice systems. Principle and techniques involving vegetation control, thinning, pruning, fertilizers and harvesting seed production system and tree improvement, integration of non-timber.

Production, Environment consideration related and stand treatments, conservation of management regime from one silviculture system to another.

9. Integrated pest management : Key factors capable of damaging forests and reducing forest yield, casual relationships and interactions between insects and disease control, general principles of integrated control measures control methods, chemical insecticides, biological, silviculture, mechanical and physical attractants and repellants, male-sterile technique, Legislative control and plant quarantine measure Impact and control as related to management objectives.

10. Wood anatomy : Introduction the cambium anatomical characteristics of the root, secondary growth in dicotyledonous roots stem primary and secondary structure, dicot and monocot stems, secondary growth in dicotyledonous stem, annual rings of growth rings, periderms, phellogen, phellem, commercial cork, pheloderm, lenticels, secondary xylemsand lucia, gougainvillea, leptadenia and salvedora, Detailed study of collenchyrnas sclerenchyma, zylem and phloem.

11. Remote sensing in forest : Theory, principles and techniques of interpretation for utilizing, serial photos for inventory and management of forest resources landform evaluation, hydrologic terrain erosion analysis land use/cover mapping and disease and insect infestations, photo mensurational techniques in preparation of stand and tree volume table : planning large scale aerial photo-projects and procurement of aerial photographs; introduction to remote sensing and the use of satellite and large scale imagery in resource mapping.

12. Forest Policy Legislation and Planning : Forest policy, definition, scope, legal and institutional approaches to forest resources management, foundation of a stable forest policy, India's national forest policy, forest law, legal definition of forest

laws that effect laws that effect the harvest and transport of forest produce laws effecting the right and responsibilities of panchayats, application of penal codes as forest principles of criminal laws, criminal procedure codes as applied to forestry, law of evidence and the Indian evidence act, wildlife legislature principles and methods of forest planning, planning at the national level, the role of natural resources In development forests placed in National Policy, Impact of forest management and policy decisions in public welfare, multiple objectives land use planning concepts, types of forestry projects and the criterion for their evaluation, project design and evaluation project, implementation, monitoring and control.

13. Tribology : Definition of forestry, stage or forestry development and its influence on forestry today. distribution of major forest types in India, production and relatives importance of climate, topography in India, production and relative importance of climate, topography and soil, forestry as a development tool, forestry organization and agencies, their structure, organization and mandates, forestry employment opportunities forestrer's role in increasing wood, water wildlife and forage value, tribology, introduction-definition, types distribution and demography of tribes. Racial classification, constitutional provisions for the development of scheduled tribes. Concepts of races, tribes, family clan and kinship, principle of social grouping, cultural traditional, customs, ethos, belief and practices of tribal in general.

14. Tree Improvement : Emphasis is on the value and implementation of tree improvement in forest management programme. Study includes genetic of establishment and management, seedling vrs clonal seed orchards, seed certification, selection practices in forestry, progeny testing, breeding for disease and pest resistance for wood, properties for agro-forestry objectives, tree, Introduction, use of indigenous vrs. exotic species, species testing. Provenance testing.

15. Wildlife management : Biological and ecological basis of management, distribution and behaviour of animals, environmental gradients, zoo-geographic regions of world with special reference to wildlife in India, fundamental requirements of wildlife, territory, factor affecting animals population, biological surplus and extinction threshold, social organization and behaviour animal communities, general inter and specific relationship, techniques of field studies of wildlife population estimation census and estimates.

16. Minor Forest Product : Fibre crops, fruits and nuts, gum and resins, dyes and tanning, forage corps.

17. Wood Technology : Wood, conversion, seasoning, wood attackers, wood borers, preservatives, marine borers, soft wood, hardwood, veneers, manufactured board, wood working, tools, hand tools, saws planes, chisels, turning tools, veneering tools and fixing tools, power tools, electric drills, sawing, planners power sanding, spindle tools, wood work, turning, carving picture, farming, finishing wood, filling and sealing varnish, shellac-lacquer, wax and oil, painting, preservatives.

18. Forest Products and their utilization : Wood anatomy, structural properties of wood, density, texture, wood seasoning, wood preservation, composite wood products, use of adhesive, plywood, particles boards, pulp and paper, saw milling wood based industries logging definition, terminology, logging development process, felling practices and equipment, skidding practice and equipment, transportation practices and equipment, timber depots, size organization and management, forest labour, organization and management, wages planning of logging activities.

19. Advanced silviculture : Major forest types of India, silviculture, characteristics of the following families : Annonaceae, fixaceae and cornbretaceae, coniferae, clilleniaceae, flacourtiaceae hand gramineae, guttifereae, eagaceae and juglandceae, legurninoceae, lythraceae, Magnoliaceae, malvaceae, theaceae and verbenaceae, forest dynamics, forest succession, computer model of forest succession, gap models, the biomass, response of landscapes, predicting largest scale consequences of small scale changes, a theory of forest dynamics.

20. Social Forestry : The concepts of social forestry, scope and objectives, choice of species and planting role of exotics in social forestry, nurseries growing and supply of seedling, maintenance and monitoring, mass involvements and extension, benefits and constraint in the implementation of social forestry programme in India. Agro-forestry, farm forestry, role of forestry in watershed management.

21. Forest Economics and Project Evolution : Impact of time on investment planning, project formulation, evaluation (Benefit cost analysis), project management, externalities not covered by benefit cost analysis, forest valuation.

22. Joint Forest Management : Principles and practices, microplanning, Forest Development Agency(FDA), village Forest Management Committee.