

Course: B.Sc. in Forestry

Syllabus Objectives and Outcome

SEMESTER – I

PAPER I: PRINCIPLES AND PRACTICES OF SILVICULTURE

Objective: To provide knowledge about forest and forest types, different forest tree species, vegetation forms and forest regeneration.

Outcome: After the end of the course, the students will be able to identify forest and other tree species, their distribution, and associated vegetation. This will also help to understand the components and dynamics of forest or different forest types.

PAPER II: FUNDAMENTALS OF SOIL SCIENCE

Objective: To provide knowledge about soil and its major components and their properties which is responsible for vegetation growth and relationship with environment. Apart from this the course will expose the student about soil formation processes, and its role in various crop productions for food and climate security.

Outcome: After the end of the course, the students will be able to understand the soil processes which maintain, soil –water relationships, nutrients availability and soil fertility in forest soils. The student will also be able to acquire knowledge of soil testing and sustainable management of soil resource.

PAPER III: BASIC MATHEMATICS

Objective: To provide knowledge about simple functions of basic mathematics for forest study

Outcome: After the end of the course, the students will be able to understand the interpretation of quantitative information from formulas, graphs, tables, schematics, simulations, and visualizations, and their application in forest related issues. They will be able to solve forest related problems using arithmetical, algebraic, geometrical, statistical, or computational methods. They can also apply various types of differentiation and integration for forest analysis.



PAPER IV: ENGLISH COMMUNICATION

Objective: To provide knowledge about English communication to solve the problems of translation, speaking, writing and good presentation.

Outcome: After the end of the course, the students will be able to communication in English. They can prepare and deliver effective oral presentations and clearly express their views, arguments, rhetorical form, and ideas at global platform.

SEMESTER – II

PAPER I: INTRODUCTORY BOTANY

Objective: To provide the basic knowledge of morphology and anatomy of various parts of higher plant and concept of alternation of generation of in lower plant.

Outcome: The students will able to understand the morphological and anatomical features of higher plants as well as the significance of alteration of generation in both group of plants.

PAPER II: FOREST ECOLOGY AND BIODIVERSITY CONSERVATION

Objective: To develop knowledge about ecological aspects of forest resource and biodiversity conservation.

Outcome: After the completion of this course, the learner will be able to understand ecological principles and concepts including the structure and function of ecosystems and existing biodiversity and their role in human welfare.

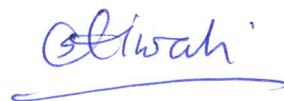
PAPER III: FUNDAMENTALS OF WILDLIFE

Objective: To give the understanding about diversity and strategies of conservation of wildlife in forest area.

Outcome: Its purpose is to provide basic knowledge of wildlife and to promote the conservation of living resource for forest ecosystem and human being.

PAPER IV: ENVIRONMENTAL STUDIES

Objective: To give the understating about environment and their role for the society.



Outcome: After completing this course the learner will be able to understand the structure and functions of eco-system and natural resources including occurring biodiversity. They will also understand the concept and issues of environmental pollutions.

SEMESTER – III

PAPER I: FOREST MENSURATION

Objective: To develop understanding of students about tree measurements, forest inventory, and yield concepts.

Outcome: To enable the students to record the biometric measurement of individual trees and forest crops. They will also be able to design and implement comprehensive and appropriate forest resource inventories.

PAPER II: CYTOGENETICS AND PLANT BREEDING

Objective: To provide basic information about plant cell along with objectives, functions and importance of tree breeding.

Outcome: On completion of this course, the students will be able to understand the plant cell structure and function. They will also be able to understand the laws of inheritance, chromosome and chromosomal abnormalities in plants, effect of mutations on gene functions and replication of DNA.

PAPER III: FOREST MANAGEMENT

Objective: To provide knowledge to students about forest management.

Outcome: On completion of this course, the students will be able to understand the various forest management practices. They will also be able to develop and evaluate management plans in forestry.

PAPER IV: ETHNOFORESTRY

Objective: To develop understanding about forest and tribal relationship.

Outcome: On completion of this course, the students will be able to understand the forest and tribal relationship and their role in forest protection, development and conservation.



PAPER IV: NURSERY PRACTICES AND PLANTATION MANAGEMENT

Objective: To give the understanding about nursery and management of plantation.

Outcome: On completion of this course the students will be able to develop forest nursery and plantations.

SEMESTER – IV

PAPER I: FUNDAMENTALS OF WOOD SCIENCE

Objective: To deal with basics of tree woods.

Outcome: The course will equip the students regarding basic structure and functions of forest based tree woods.

PAPER II: NURSERY MANAGEMENT AND COMMERCIAL FORESTRY

Objective: To develop knowledge about nursery management and commercial use of some important forest trees.

Outcome: The course enables the students about management system of nursery and commercial use of some important forestry species.

PAPER III: APPLICATION OF REMOTE SENSING AND GIS IN FOREST AND WATERSHED MANAGEMENT

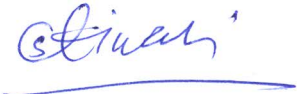
Objective: To give the understanding about use of Remote Sensing and GIS technique in Forest and Watershed Management

Outcome: After completing this course, the learner will be able to understand the application of Remote Sensing and GIS technique for the measurement and mapping of forest and watershed areas.

PAPER IV: NON WOOD FOREST PRODUCTS AND UTILIZATION

Objective: To give the understanding and knowledge of various non-wood forest products and their utilization in forest industries.

Outcome: The course will equip the students about non wood based industries.



SEMESTER – V

PAPER I: WILDLIFE MANAGEMENT

Objective: To give the understanding and conservation of wildlife in forest area.

Outcome: Wildlife plays an important role in balancing the environment. After having the knowledge about wildlife, students will spread the message among society for conservation and protection of wildlife. Its purpose is to promote the conservation of living resources important to human being.

PAPER II: WOOD TECHNOLOGY

Objective: To acquaint with the physical characteristics and strength properties of wood.

Outcome: The course enables the students to deal the forest as a timber industry and wood is a major product of forest.

PAPER III: FOREST TREE SEED TECHNOLOGY

Objective: To understand the development of forest tree seeds

Outcome: After completion of the course, the students will be able to understand the theoretical orientation of forest seed development. Analyse the different ways of seed processing in different forest trees. Examine the various methods of Seed testing and understand the method of seed production in different plants.

PAPER IV: METEOROLOGY AND CROP PRODUCTION

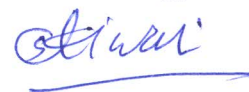
Objective: To understand the relationship of crops and meteorology

Outcome: Students will enable to know the relationship of forest crops with environment in different conditions.

PAPER V: BASIC CONCEPTS OF HORTICULTURE AND LAND SCAPING

Objective: To develop the understanding on horticultural crops and their landscaping

Outcome: On the completion of the course the students will be able to understand the different classifications of horticultural crops, nursery management, and use of technology in horticulture.



SEMESTER – VI

PAPER I: FOREST PATHOLOGY AND ENTOMOLOGY

Objective: To provide knowledge about principles of forest pathology, diseases & pest of important tree species.

Outcome: On the completion of the course the students will be able to understand the concepts in tree pests and diseases, and to maintain a healthy nursery and forest.

PAPER II: AGROFORESTRY

Objective: To provide knowledge about concept of agroforestry

Outcome: After completion of the course, the students will be able to develop understanding about the concept of agriculture and agroforestry, their effect on the traditional agroforestry systems in India, classification of the different agroforestry system. They can also design various tree architecture and canopy management and economics of agroforestry systems.

PAPER III: FOREST ECONOMICS

Objective: To know the basic elements of forest economics

Outcome: On the completion of this course, the students will be able to distinguish among the different forms of forestry production, identification of the resources in forestry for better economy, and design the projects on forest economy related problems.

PAPER IV: FOREST TREE IMPROVEMENT AND BIOTECHNOLOGY

Objective: To acquaint the students about general principles of tree breeding with examples of important trees with biotechnological concept

Outcome: On the completion of the course the students will be able to develop conceptual understanding of plant genetic resources, plant breeding, gene bank and gene pool, familiarize with genetic basis of heterosis, explanation on monogenic and polygenic inheritance. They can also be able to know the core concepts and fundamentals of plant biotechnology and genetic engineering and development of different types of plant tissue culture including analysis of the enzymes and vectors for genetic manipulations and transgenic technology.

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PAPER V: CARBON FORESTRY AND GLOBAL CLIMATE CHANGE

Objective: To understand the role of carbon in existence of life on the Earth, global warming and climate change due to excess carbon emission and different rule book for mitigation of carbon emission.

Outcome: The students will be acquainted with the global scenario of carbon, its effects on global carbon cycle, carbon trade and economic development.

PAPER VI: COMMUNITY FORESTRY

Objective: To provide the knowledge about community forestry and its role

Outcome: After completion of the course, the students will be able to understand community forestry and its conservation, use of trees and community forestry, interpretation of the role of indigenous/ tribal people in conservation of forest. They can also know about the role of various community forestry conservation programs.

SEMESTER – VII

PAPER I: BIOSTATISTICS

Objective: To provide knowledge about fundamentals of biostatistics and its use in forestry

Outcome: At the end of the course the students will be able to comprehend the fundamental concepts of biostatistics. They will also be able to understand the analysis and implications of inferential statistics in forestry and development of hypothesis testing and interpretation.

PAPER II: FOREST SURVEYING AND ENGINEERING

Objective: To develop understanding about survey and engineering concepts in forest management.

Outcome: To enable the students to record the survey data and implement the engineering in the forest areas.

PAPER III: FOREST POLICY LEGISLATION AND ENVIRONMENTAL ACT

Objective: To develop understanding about forest policy, laws and Environmental Act.

Outcome: Enables the students to be able to manage the forest with the legal aspects.

PAPER IV: WORLD FORESTRY SYSTEMS

Objective: To provide information about classification and major characteristics of forest at world scenario.

Outcome: At the end of the course the students will be able to understand the world forest distribution pattern and their proper utilization by the forest based industries.

PAPER V: FUNDAMENTALS OF EXTENSION EDUCATION

Objective: To provide information about basics of extension education in forestry

Output: Students will be enable the basics of extension education and its use in forest and forestry programmes.

PAPER VI: ENTREPRENEURSHIP DEVELOPMENT

Objective: To provide knowledge on entrepreneurship and communication skill in forestry

Output: After completion of the course, the students will be able to understand the basics of entrepreneurship and use in forestry sector.

SEMESTER - VIII

❖ SOCIO-ECONOMIC SURVEY- VILLAGE ATTACHMENT

Data collection with respect to village profile in respect of socio-economic and cultural status, farm technology used etc. Bench mark survey of plant resources (cropping pattern, yield system etc). Schedule development, tabulation, analysis and preparing plan of work. Understanding local Forestry and other village level institutions (Panchayat, village forest community, corporations, youth/women groups etc.). People's participations in development programmes with special reference to Forestry. Exercise on the use of extension methods and teaching aids for transfer of technology.

❖ FORESTRY OPERATIONS (WORKING EXPERIENCE)

Visit to modern forest nurseries, Herbal garden and watersheds. Study the felling and logging operations, timber lots and important industrial products. Study working plan. Enumeration, volume and yield calculation and component history file. Study the CAT (Catchment area treatment) plan and FDA (Forest Development Agencies). Use of Forestry

equipments/instruments. Study the regeneration and management of important Forestry tree species. Sample plots, layout studies, stump analysis, preparation of local volume table.

❖ **FOREST INSTITUTES AND INDUSTRIAL VISIT/ TRAINING**

- Study the nature of forest based industries
- Raw material- Collection and processing of raw material.
- Production and management process.
- Marketing and financial management.
- Visits of nearby forestry institutions/ organizations

