Program Outcomes (POs)
Program Specific Outcomes (PSO)
Course Outcomes (COs)

DEPARTMENT OF FORESTRY

**DOON (P.G.) COLLEGE OF AGRICULTURE SCIENCE AND TECHNOLOGY
SELAQUI, DEHRADUN, UTTARAKHAND.**

M.Sc. Forestry (Silviculture and Agroforestry)
Programme Summary Duration: 2 years

4 years graduation degree in Forestry with 45% marks.

Program outcomes

1. The course will be helpful to render the problem of restoration of wastelands, climate change mitigation and environmental amelioration.
2. To lower cultivation costs while also providing high-yielding, disease-free seed to boost afforestation and reforestation programs.
3. Establishing the Nursery unit to meet the demand of plantation program.
4. Sustainable utilization of natural resources, their protection, conservation, the factors polluting the environment, their impacts and control measure
5. To learn about different ecological aspects of forest, resources, productivity, forest ecosystems and biodiversity.
6. To learn about various Agroforestry systems, concepts, importance, implications and researches at national/international level.
7. To learn about various aspects and concepts of wood, water relations, physio-chemical aspects, seasoning & preservation techniques, factors affecting utilization etc.
8. To Study about various aspects of forests, their importance, interaction with humans, livestock, farming systems, forest rights, climate change, biodiversity management etc.
9. To study about planning establishment, resources, importance and management of seed orchards, their types, genetic and silvicultural aspects.

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Silviculture
Course code: SOA/FCMC/501
Course Outcomes:

CO1: Course will enrich the knowledge of students related to forest nursery production and forest types, different tree species and forest survey.

CO2: The course makes students to identify forest and tree species, their distribution, and vegetation structure.

CO3: Students will be able to conduct experiment on seed dormancy, forest regeneration survey and its analysis for vegetation.

CO4: Student will able to perform cultural operations like tending operation, pruning, climber cutting etc. in a forest stand.

Forest Biometry
SOA/FCMC/502
Course Outcomes:

CO1: Students will develop knowledge about tree measurements, forest inventory, and yield concepts.

CO2: Student's ability to observe individual trees and forest crops for future yield and carbon monetization.

CO3: Students will be able to develop and design forest resource inventories.

CO4: Future job prospects to forestry and allied sectors.

Silvicultural Practices
SOA/FCMC/503
Course Outcomes:

CO1: Impart knowledge about the basic facts of Forestry.

CO2: Understand to develop and apply silviculture treatments appropriate to the management objectives.

CO3: Learn, understand the methodologies utilized in collecting data required for forest growth and yield studies

CO4: Learn about the nursery technology of important agroforestry tree species.

Agroforestry systems
SOA/FCMC/504
Course Outcomes:

CO1: Students will get information on current scenario of agroforestry and tree outside forests.

CO2: Student's will develop competencies on tree based farming and managements.

CO3: Students will be able to identify the potential areas for plantations and carbon sequestration calculation.

CO4: Students will be able to estimate the demand and requirement related to timer and non wood forests products for its industrial application

General Statistical Methods and Computer Application
SOA/FESC/511A
Course Outcomes:
CO1: Students enable to exploit biostatistics in forestry and allied subjects.
CO2: Students friendly worksheet using excel sheet for analysis and data interpretation using computer based software.
CO3: Student will be efficient in data handing and graphic, and representation.
CO4: Subject will help in their professional development and career building.
CO5. To give Practical hands-on training on Library softwares.
CO6. To explore the students on Internet searching, Online Database Searching and Web Designing.

Library and Information Services
SOA/FECC/01
Course Outcomes:
CO1: Comprehend the concept of information and the discipline of Library and Information Science
CO2: Understand the development of libraries
CO3: Classify libraries based on their purpose and functions
CO4: Know the role of libraries in the development of various aspects of society
CO5: Comprehend the basic philosophy of Library and Information Science

Technical Writing and Communication Skills
SOA/FECC/02
Course Outcomes:
CO1: Research Skills (using primary and library research to discover and employ information)
CO2: Correspondence Skills (learning the generic conventions of each)
CO3: Promotional Writing Skills (may or may not use primary research; to disseminate information; to inform and persuade public audiences that organizations communicate with)
CO4: Visual Communication Skills (may appear as separate assignments or as components of other assignments

Intellectual Property Rights & Its Management in Agriculture
SOA/FECC/03
Course Outcomes:
CO1: Acquire Skill to pursue the professional programs in Company Secretary ship, Law, Business, Agriculture, International Affairs, Public Administration and Other fields.
CO2: Develop procedural knowledge to Legal System and solving the problem relating to intellectual property rights.
CO3:   Establishment of Legal Consultancy and service provider, Employability as the Compliance Officer, Public Relation Officer and Liaison Officer.
CO4: Apply Skill to understand the concept of intellectual property rights.

Basic Concepts in Laboratory Techniques
SOA/FECC/04
Course Outcomes:
CO1. The objective of this laboratory course is to provide the students practical skills in basic molecular biology and microbial bio resources.
CO2. Students will learn different techniques of molecular biology.
CO3. Enable students to acquire expertise in the field of microbiology.
CO4. Demonstrate practical skills in different laboratory equipment's and their handling.

Agricultural Research, Research Ethics & Rural Development Programmes
SOA/FECC/05
Course Outcomes:
CO1. Students understand about the organization and functioning of agricultural research systems at national and international levels.
CO2. Students understand about research ethics, and rural development programmes and policies of Government.

M.Sc. Forestry 2nd semester

Interactions in Agroforestry Systems
SOA/FCMC/505
Course Outcomes:
CO1: At the completion of this course the students should be in a position to understand how the various components in an agroforestry management system or technology interact and influence one another's performance and that of the whole system.
CO2: Students will be in a position to spearhead the planning, structuring and managing best set agroforestry practices that limit out negative influences while promoting the positive ones.

Modern Nursery Plantation Technology
SOA/FCMC/506
Course Outcomes:
CO1: Course will enrich the knowledge of students related to forest nursery production and forest types, different tree species and forest survey.
CO2: Students will be able to identify pest and disease in nursery, plantation and forest and suggest control measures.
CO3: Student's will develop competencies on tree based farming and managements.

Industrial Agroforestry
SOA/FCMC/508
Course Outcomes:
CO1: Course provides opportunities for the students to attach with the agriculture and forestry related industries and make them know about the functioning them.
CO2: The course will equip the students regarding forest based industries and their impact on the economy of the country.
CO3: At the completion of this course the students will aware regarding extraction and processing methods of different forest products.

Forest Ecology & Biodiversity Management
SOA/FEMC/01
Course Outcomes:
CO1: Students will be competent in basic forest management principles and evaluation of forest stands for health, wildlife habitat.
CO2: Students will be able to participate actively in solving current environmental problems and preventing the future ones.
CO3: Students understand about depth knowledge of the abiotic and biotic drivers of forest ecosystem processes and ecological communities.

Applied Forest Tree Improvement
SOA/FEMC/02
Course Outcomes:
CO1: Students understand the importance of tree improvement and familiarize tree breeding methods.
CO2: Students Understand genetic, environmental and phenotypic expression of trees.
CO3: Students understand genetic engineering and its application in forestry.

CLONAL FORESTRY
SOA/FEMC/03
Course Outcomes:
CO1: Students understand about genetics, conservation, biotechnological approaches for trees in clonal forestry system for higher biomass/ yield productivity.
CO2: Students will develop scientific skill of clonal propagation technologies to augment the productivity.

Experimental Designs
SOA/FCSC/511B
Course Outcomes:
CO1: Students understand the importance of statistical methodology.
CO2: Students understand the concepts involved in data presentation, analysis and interpretation of results.
CO3: Students friendly worksheet using excel sheet for analysis and data interpretation using computer based software.
CO4: Student will be efficient in data handing and graphic, and representation.

M.Sc. Forestry 3rd semester

CLIMATE CHANGE AND CONSERVATION SILVICULTURE
SOA/FCMC/509
Course Outcomes:
CO1: Students understand the scenario of climate change and international treaties on climate, adaptive silviculture for climate change mitigation, silviculture for conservation of ecosystems.
CO2: Students will understand the climate change pattern with reference to world forest.
CO3: Students will learn about the world forest and its significance on climate change scenario.
CO4: Students will understand the world forest distribution with respect to climate.

TREE AND SHRUBS FOR AGROFORESTRY
SOA/FCMC/510
Course Outcomes:
CO1: To make students familiar with trees and shrubs (fruit, fodder and small timber) suitable for agroforestry.
CO2: Students will understand about multipurpose tree species (MPTs) and their management

ECONOMICS OF AGROFORESTRY SYSTEMS
SOA/FCMC/511
Course Outcomes:
CO1: To acquaint the students with principles of economics and use of economic tools in appraisal of the agroforestry systems.
CO2: Students understand the Evaluation of ecosystem services from agroforestry- economic and ecological aspects of agroforestry.
CO3: Students will get knowledge about the implementation of economics in forestry and its allied subjects.

TREE SEED TECHNOLOGY
SOA/FCMC/512
Course Outcomes:
CO1: Students understand about the tree seed development, harvesting, processing, storage, dormancy, germination of tropical, sub-tropical and temperate species.
CO2: The course provides students with basic skills in identifying sources of tree seeds, collecting seeds, treating them and marketing tree seeds.
CO3: Students development for seed certification and handling and trading.

M.Sc. Forestry 4th semester
Nutrient and Weed Management in Production Forestry
SOA/FEMC/513
Course Outcomes:
CO1: Students understand the concepts of nutrients and their management, weeds and their management in nurseries and plantations.
CO2: The course provides, various aspects of the biology influence competition, weed persistence and spread, and optimal timing and methods of control.
CO3: Students Identify common weeds in landscapes, turf and nurseries

Crops and Live Stock Management In Agroforestry
SOA/FEMC/514
Course Outcomes:

CO1: Students understand the processes of growth and development of plants interact with management operations in a crop production system
CO2: The course provides, knowledge on interactions between tree and live stock including their management, principles of crops and fodder production in agroforestry.
CO3: Students identify the role and place of selected crops in production systems