21AGRO104 INTRODUCTION TO FORESTRY

Hours Per Week :

L	T	P	C
1	-	2	2

Total Hours :

L	T	P
15	-	30

Source :

https://www.researchgate.net/publication/24830968_Economic_Feasibility_f_an_Eucalyptus_Agroforestry_System_in_Brazil/figures?lo=1

Course Description and Objectives:

This course deals with the basic aspects of forestry, importance of forests and agro forestry system in sustainable agriculture and practical knowledge about techniques of planting and management of trees

Course Outcomes:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes
1	Familiarize and appreciate the role and importance of trees and forests the dynamic changes that they undergo including future forest stand and tree conditions
2	Understand the types and forms of the trees and thier suitability for integartion with agriculture and agro-forestry systems and promote them
3	Students will understand the economic value of forest and know many of the products they provide to people and society

SKILLS:

- ✓ *Identify different flora and fauna associated with forest ecosystem*
- ✓ *Develop planting systems for Agri-silviculture and Silvipastoral system*
- ✓ *Handling and raising of seedling of forest trees*
- ✓ *Identify suitable crop plants for Agri-silviculture*

ACTIVITIES:

- *Visit to forest tree nurseries*
- *Tree Planting as a regular practice*
- *Raising of saplings of forest trees*
- *Design and Calculate the area and cost of establishment for forest nursery*
- *Conduct Essay writings and group discussion on importance of forest coverage and protection measures*

UNIT - 1

Introduction: Introduction, definitions of basic terms related to forestry and agro-forestry; Objectives of silviculture, forest classification, salient features of Indian forest policies; Forest regeneration, natural regeneration from seed and vegetative parts, coppicing, pollarding, root suckers

UNIT - 2

Artificial Regeneration: Artificial regeneration, objectives, choice between natural and artificial regeneration, essential preliminary considerations. Crown classification. Tending operations, weeding, cleaning, thinning, mechanical, ordinary, crown and advance thinning

UNIT - 3

Forest Mensuration: Forest mensuration, objectives, diameter measurement, instruments used in diameter measurement; Non instrumental methods of height measurement, shadow and single pole method, instrumental methods of height measurement

UNIT - 4

Forest Mensuration: Geometric and trigonometric principles. instruments used in height measurement, tree stem form, form factor, form quotient, measurement of volume of felled and standing trees, age determination of trees

UNIT - 5

Agroforestry: Agroforestry, definitions, importance, criteria of selection of trees in agroforestry, different agroforestry systems prevalent in the country, shifting cultivation, taungya, alley cropping, wind breaks and shelter belts, home gardens; Cultivation practices of two important fast growing tree species of the region. Flora and fauna in forest areas

· Advantages of agroforestry land use classification

· Different type of tree species Wood and non wood, medicinal crops

· Measurement of growth in Agroforestry systems (Height, DBH, Canopy spread etc)

LABORATORY EXPERIMENTS

LIST OF EXPERIMENTS

1. Identification of tree-species, Identification of fodder crops
2. Diameter measurements using calipers and tape, diameter measurements of forked, buttressed, fluted and leaning trees
3. Height measurement of standing trees by shadow method, single pole method and hypsometer
4. Volume measurement of logs using various formula
5. Biomass estimation in energy plantations
6. Nursery layout, seed sowing
7. Application of pre-sowing seed treatments
8. Vegetative propagation techniques

9. Pitting and Field planting techniques
10. Forest plantations and their management
11. Identification of important major and minor forest products; flora and fauna
12. Visits of nearby forest based industries
13. Visit to social nurseries of forest department
14. Visit to energy plantations and forest research centres
15. Hay and silage making; Collection and maintenance of forest products and herbarium

REFERENCES:

1. Dwivedi, A.P.1980. Forestry in India, Jugal Kishore and Company, Dehradun
2. Negi, S.S.1999. Agroforestry hand book, International book distributor, Dehradun
3. Ram Prakash and Drake Hocking.1986. Some favourite trees for fuel and fodder, International book distributor, Dehradun
4. Singh, S.P. 2009. Tree farming-. Agrotech Publishing academy, Udaipur
5. Singh, S.P. 2010. Favourite Agroforestry trees, Agrotech Publishing academy, Udaipur Troup, T.S.1986. Silviculture of Indian trees (Vol. II & III) - International book distributor, Dehradun