EXTENDED LECTURE OUTLINE

FES6 311 **Introductory Agro-forestry** **(1+1)**

Class	Topic	Major Contents
1	Introduction to Agroforestry	Definition, concept, objectives, characteristics and scope of agroforestry
2	Agroforestry Systems and Classification	Components of agroforestry; types of systems; structural, functional and ecological classification
3	Potential of Agroforestry in India	Importance and potential; agro-climatic regions; present status; constraints and opportunities
4	Prevailing Agroforestry Systems in India	Agrisilviculture, silvopasture, agrosilvopasture, agrihorticulture, hortisilviculture and other traditional systems
5	MPTS in Agroforestry	Definition and importance of Multipurpose Tree Species (MPTS); characteristics and role in agroforestry
6	Selection of MPTS for Agroforestry; MPTS of India	Criteria for species selection; site suitability; root, crown and bole characteristics; compatibility with crops; Important species such as *Azadirachta indica*, *Tectona grandis*, *Dalbergia sissoo*, *Leucaena leucocephala*, *Pongamia pinnata*, *Melia dubia*; uses and suitability
7	Ecological Aspects of Agroforestry	Agroforestry and ecosystem functions; biodiversity; microclimate; carbon sequestration; nutrient cycling
8	Tree–Crop Interactions	Competition and complementarity; above- and below-ground interactions; light, water and nutrient competition; root interactions
9	Nutrient Recycling and Soil–Water Conservation	Leaf litter decomposition; nutrient cycling; soil organic matter; erosion control; water infiltration and conservation
10	Traditional Agroforestry and Agrobiodiversity	Indigenous/traditional agroforestry systems; role in conservation of agrobiodiversity; examples from different regions of India
11	Management of Agroforestry Systems	Tree density and spacing; pruning, thinning, lopping, pollarding; coppicing; weed management; nutrient and water management
12	Windbreaks and Shelterbelts	Definition; objectives; design and arrangement; species selection; wind protection; differences between windbreaks and shelterbelts
13	Socio-economic Aspects of Agroforestry	Farm income, employment, risk reduction, food/fodder/fuel/timber production
14	Design and Diagnosis of Agroforestry Systems	Principles of system design; spatial and temporal arrangements; diagnosis of existing systems
15	Introduction to Silviculture and Tree Propagation; Regeneration and Vegetative Propagation	Definition and scope of silviculture; importance in agroforestry; Regeneration by seed, coppice, root suckers, stump planting, branch/stem cuttings and rhizomes; advantages and limitations
16	Forest Nursery Management; Nursery Stock and Tree Management	Nursery site selection; nursery bed preparation; seed sowing; watering; weeding; shading; manuring; pest and disease management; Cultural practices for bare-root seedlings and container seedlings; hardening; lifting, grading, packing, transportation and field handling
17	Silviculture of Important Agroforestry Tree Species	Silviculture aspects of tree species – *Tectona grandis, Melia dubia, Santalum album, Pterocarpus santalinus, Swietenia macrophylla, Grevillea robusta, Casuarina equisetifolia*, *Artocarpus heterophyllus*.
18	Agroforestry Models in India	Horticulture- and forage-based models developed by ICAR–IGFRI; agroforestry models developed by ICFRE; examples, applications and suitability