

BSc.

**B.Sc. (CBCS)–I year
Semester-I
Subject: Forestry
Paper-I**

**Paper title: Fundamentals of Silviculture, Factors effecting forestry,
Silviculture of Trees, Agro, Social and Urban Forestry
Theory Syllabus**

Credits -4
(60 hours)

Unit I: Fundamentals of Silviculture

1. Study of Forestry and its significance of (production and protection, amelioration and recreation, education and development) (4h)
2. Vegetation forms of India (Vegetation of mountains, tropical rain forest, desert, tropical deciduous forest, scrub forest and mangrove forest) (4h)
3. Silviculture systems: clear felling, uniform shelter wood, selection, simple coppice and coppice with standard system. (4h)

Unit II: Factors effecting forestry

1. Factors effecting forest:
 - i. Edaphic factors: Definition – soil formation – Factors effecting soil formation – soil profile – soil composition – soil texture –soil structure nutrient level of soil – mineral cycle – soil water – various forms of water present in soil – field capacity – soil organic matter – soil reaction or soil pH – forest soil types of India (6h)
 - ii. Climatic factors: solar radiation – effect of light on vegetation – heliophytes – sciophytes – types of precipitation (rainfall, dew, mist, snowfall etc.) – rainfall in India – hydrological cycle microclimate. Effect of temperature on vegetation – frost & its injuries – wind and its effects on vegetation (6h)
 - iii. Biotic factors: Relationship between plant and plant, plant and animal and plant and human (shifting cultivation, encroachment and illicit felling, grazing and browsing, forest fires and its injuries, manipulation) (2h)
 - iv. Physiographic factors: Altitude, slope, direction of mountain, exposure to light and valleys effect on vegetation. (2h)

Unit III: Silviculture of Trees

1. Silviculture of some economically important species in India – *Acacia nilotica*, *Azadirachta indica*, *Bamboo* spp., *Casuarina equisetifolia*, *Cedrus deodara*, *Dalbergia sisso*, *Dalbergia latifolia*, *Pinus roxburghii*, *Populus* spp., *Pterocarpus marsupium*, *Santalum album*, *Simaruba glaca*, *Shorea robusta*, *Tectona grandis* and *Terminalia tomentosa*. (10h)
2. Silviculture of Mangrove: Habitat and characteristics, silviculture systems for mangroves, importance of mangrove (3h)
3. Silviculture of cold desert: characteristics, identification and management of species. (3h)

Unit IV: Agro, Social and Urban forestry

1. Agroforestry –Definition, aims, objectives –scope and necessity – classifications – traditional agroforestry systems. Tangya system, shifting cultivation, wind break, shelterbelts, homestead gardens, alley cropping, benefits (6h)
2. Social forestry/urban forestry – objectives –scope and necessity – classifications – benefits (6h)
3. General topics – JFM (principles, objectives, scope, benefits and role of NGOs), VSS (2h)

Anishan
Head
Department of Botany
Telangana University,
Dichpally, Nizamabad-503322
Telangana State

ref.
Chairman
Board of Studies
Department of Botany
Telangana University,
Dichpally, Nizamabad-503322.
Telangana State

B.Sc. (CBCS)-I year
Semester-II
Subject: Forestry
Paper-II

R-19

Paper Title: Forest Ecology, Biodiversity and Environmental conservation,
Forest Mensuration
Theory syllabus

Credits-4
(60 hrs)

Unit - I: Forest Ecology

1. Concepts of ecology - Abiotic - Biotic components of ecosystems - forest ecosystems (grassland forest and desert ecosystems) - tropical level food chain food web - energy flow in ecosystems - ecological pyramids (number, energy and biomass pyramids) (6h)
2. Forest types of India with special reference to the forest types of Telangana (4h)
3. Community ecology - plant succession - kinds of succession climax theory - process of succession - hydrach and xerach (4h)

Unit - II: Biodiversity and Environmental Conservation

1. Biodiversity concepts - kinds of biodiversity levels, threats and value of biodiversity - conservation of biodiversity (4h)
2. Environmental policy and legislation in India. Environmental impact assessment (4h)
3. Pollution - types of pollution - air, water, noise and soil pollutions (causes, prevention and control measures) (4h)
4. Global warming, green house effects, ozone layer depletion, acid rains - impacts and control measures. (4h)

Unit - III: Forest Mensuration - A

1. Elementary account of forest mensuration - its objectives and scope (3h)
2. Single tree measurement - measurement of diameter and girth - bark thickness - measurement of height (instruments worked on similar triangle principles, trigonometric principles) - basal area - form factor - stump and stem analysis (10h)
3. Crop measurement - introduction - determination of diameter - diameter of crop, height of crop, age of crop and volume of crop (3h)

Unit - IV: Forest Mensuration - B

1. Determination of growth of trees: definition of increment - classification of increment (C.A.I, M.A.I and P.A.I) relationship between C.A.I, and M.A.I (6h)
2. Sampling - relative advantages of sampling - kinds of sampling - random and non-random sampling (6h)
3. Elementary account on volume table - local table and yield table (2h)


Chairman
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Dichpalli, Warangal
Telangana State