

**B. Sc. Three Year Degree Course**  
**Department of Forestry and Environmental Sciences**  
**Detailed semester syllabus commenced from 2016-17**

**I Semester**

**Paper I Forest Ecology**

**(60+ 20 marks)**

Definition, division, scope and importance of ecology in forestry and basic concept of forest ecology. Ecosystem-structure, components and important ecosystems, forest grassland, desert and pond Ecosystem. Ecological energetic- concepts of energy flow, Tropic structure, food chain, food web and ecological pyramids. Forest communities- vegetational analysis, biomass, productivity and forest floor mass. Climatic factors- Solar radiation, temperature, precipitation (rainfall, snow and frost) and frost damage, Moisture, atmospheric humidity and wind. Topographic factors, Edaphic Factor, Biotic factors- influence of plants competition, parasite, epiphytes, climbers, weeds, and influence of wild animals, influence of man and his domestic animals. Plant Succession- causes, mechanism of succession, kind of succession, primary succession, secondary succession and climax.

**Paper II Forest Biodiversity and Forest Types**

**(60+ 20 marks)**

Definitions, scope and importance of biodiversity. Regions of biodiversity. Assessment of biodiversity, threats to biodiversity. Threats to Biodiversity: Ex- situ and in-situ conservation and hotspot areas. Biodiversity conservation, Species of red data book. Classification of forest – basis of classification, Champion and Seth's classification of Forest types of India and forest types of Uttarakhand Himalaya.

**Paper III Principles of Silviculture**

**(60+ 20 marks)**

Definition of silviculture and silvics, its scope and classification. Relation of silviculture with forestry and its branches. Form and growth trees- Tree morphology: root system, form of root, adaptability and mycorrhizae, crown, branches and foliage, stem- buttressing and fluting. Tree growth: stages of growth phenology, germination and establishment. Seasonal progress of growth, height and diameter growth and reproduction. Forest regeneration - Natural regeneration and methods of natural regeneration. Artificial regeneration and methods of artificial regeneration. Tending operation- weeding, cleaning and thinning.

**Practical**

**(45+15) 60 Marks**