AGRI 121 ENVIRONMENTAL SCIENCE, ECOLOGY AND FORESTRY 3(2+1)

UNIT I

Concept of Environment Science, Living world and population; Introduction to weather, Climate and Ecosystem; Air pollution; water pollution; soil pollution; its causes, effects and remedies, Major categories of world climate, Indian climatology-different seasons; Climate changes and its impact on lives

UNIT II

Bioremidiation; Green technologies and environmental protection; Environmental protection Act; Air, water, wild life protection and forest conservation acts

UNIT III

Natural disasters-case studies, its management; Floods, earthquake, cyclone and landslides; Environmental information systems (ENVIS) and its role in environment science; Applications of information technology in environment science, Environment Auditing and Accounting

UNIT IV

Historical development of ecology as a science, Concept of levels of biological organization; Ecosystem classification and distribution; Biodiversity and conservation-definition, levels of studies, distribution of diversity in life forms, hotspots of biodiversity, measurement of diversity and diversity indices; Priciples of conservation biology, *Ex situ, in situ* methods of conservation Biosphere concept; Conservation-efforts in india and worldwide.

UNIT V

Land use definition, classification and planning; Agroforestry-definition, aims,objectives and need; Tradional agroforestry systems, Taungya system, shifting cultivation, wind break, shelter belts, homestead gardens; Classification of agroforestry system-structural, functional, socio-economic and ecological basis; Multipurpose tree species and their characteristrics, Tree architecture, canopy management-lopping, pruning, pollarding and hedging; Choice of species on ecological aspects-afforrestation of dry land, wet land, other adverse site; Forest environment-major abiotic and biotic components and their interaction

Practical

1. Environmental monitoring stations and its application
2. Study the prediction of weather forecast
3. Application of IT in environmental impact
4. Study the characteristrics of tree/shrubs/grasses for agroforestry
5. Study of tools, materials and operations for establishment of plantation
6. Site selection and site preparation for plantation
7. Exercise on plantation and tending
8. Study special techniques for difficult sites.
9. Measurement of diversity of plants and insects in a nearby forest

Reference Books

1. A text book of environmental science by Thakur, V
2. A text book of environmental science as per UGC Unified Syllabus by purohit, S.S., Shammi, Q.J. and Agrawal, A. K.
3. Encyclopedia of environmental science vol. 22
4. Water pollution by P.R. Trivedia and Gurudeepraj
5. An introduction to air pollution by R.K. Trivedi and P.K.Goel B.S. Publication.
6. Fundamentals of ecology by Eugene Pleasants Odum, Gary W. Barrett
7. Ecology And Environment by Sharma P.D.