Semester – I

FC (Env-401:- Foundation Course on Environment)

(Theory Core Course with 04 credits)

Course Objectives

Students will be able to know

1. Dynamics of ecosystems, energy flow in ecological system, nature of a biotic and biotic components and stability concept of ecosystem.
2. Various types of degraded ecosystems, ecological succession, concept of climax and role of pioneer's species in restoration of ecosystems.
3. Population dynamics, prey predator relationship, concept of community, community competition and ecological sustainability.
4. Nature and status of renewable and non-renewable resources, mineral resources, fishery resources, energy resources and recycle, reuse and recovery of these resources.

Teaching Scheme		
Lectures	:-	4 hr/week
Tutorials	:-	1 hr/ week
Test	:-	1 hr/week
Total Credit	:-	04

Evaluation Scheme		
Test	:-	20 Marks
Teacher Assessment	:-	30 Marks
Sem-End Examination	:-	50 Marks
Total Marks	:-	**100 Marks**

Unit-I: - Ecosystem Dynamics: 10+2

Concept of ecosystem, A biotic and biotic components, Energy in ecological system, Concept of productivity, Energy flow in ecosystem, Food chain, Food web, Ecological pyramids, Cybernetic nature and stability of ecosystem, Concept of habitat, Ecological niche, Guild, concept of ecotone, Edge effect, Ecological succession, Mechanism of succession, Concept of climax , Concept of Gaia hypothesis.

Unit-II:- Restoration of Degraded Ecosystems: 10+2

Degraded ecosystems such as, Forest, grassland, Desert ecosystem, Lentic and Lotic ecosystems, Coastal ecosystems, etc., Role of pioneer species in restoration, Major biomes of world.

Unit-III :- Population and Community Ecology: 10+2

Concept of population ecology, Population dynamics, Characteristics of population: Natality, Mortality, Fecundity, Density, Age distribution, Prey predator Relationship, Population explosion: Concept of community, Interspecific and intraspecific competition, Concept of carrying capacity, Ecological sustainability.

Unit-IV :- Natural Resources : 10+2

Renewable and non-renewable resources, Wild life resources, Water resources, Water use, Water conservation, Rain water harvesting, fishery resources, Mineral resources, Impact of over exploitation of mineral resources, Exploitation of metallic ores, Energy resources, Conventional and non-conventional energy resources, Natural resource conservation practices, Recycle, reuse and recovery of resources through 3 R principles.

Unit-V : Environmental Pollution: 10+2

Air pollution :- Sources, Air pollution episodes and disasters, Industrial pollution, Major effects of air pollution, Control measures.

Water pollution :- Sources, Types, Water pollution episodes and disasters, Major effects, Monitoring and preventive measures.

Noise pollution :- Sources, Vibration and impact isolation, Monitoring of noise, Noise pollution control equipments, Noise standard and control measures.

Soil pollution :- Sources, Effects, Methods of soil reclamation, Soil conservation measures.

Radiation :- Major sources, Nuclear fusion and fission effects, Use of nuclear weapons and their consequences, Impact, Radioactive risk assessment and waste disposal practices.

Current development in the subject.

Course Outcome

Students should able to:

1. define ecological systems and its functionality along with stability concept of ecosystem
2. Describe various types of pioneer species and their role in restoration of ecosystems.
3. Recognize ecological succession, concept of climax and degraded ecosystem.
4. Examine nature and status of renewable and non renewable energy resources, mineral resources and energy resources.