## Course Code: 12BB12K5

**Objectives:** 1) To make students aware to environmental problems and issues;

2) To inculcate values of Environmental ethics amongst the students.

## **Detailed Curriculum:**

**Unit I: Introduction:** Definition - Scope and Importance - Measuring and defining environmental development - indicators – Lithosphere – Hydrosphere – Atmosphere – Biosphere – Biogeochemical cycles – Carbon, Nitrogen and Hydrological Cycle. – Man and Nature relation and interaction with respect to food, Clothing, Shelter and Occupation.

**Unit II: Basic Principles of ecosystem functioning:** Concept of an ecosystem - Structure and function of an ecosystem - Producers, consumers and decomposers - Energy flow in the ecosystem - Food chains, food webs and ecological pyramids - Introduction, types, characteristic features, structure and functions - Forest ecosystem - Grassland ecosystem - Desert ecosystem - Aquatic ecosystems (ponds, streams, lakes, rivers oceans, estuaries)

**Unit III: Environment and Natural Resources: Forest Resources -** Use and over-exploitation - Deforestation - Timber extraction - Mining and dams – their effects on forests and tribal people.- **Water Resources -** Use and over-utilization of surface and ground water - Floods, droughts - Conflicts over water – Dams - benefits and costs - Mineral resources - Use and exploitation - Effects of extracting and using mineral resources - Food resources - World food problems - Changes caused by agricultural and overgrazing - Effects of modern agriculture, fertilizer-pesticide problems, water logging and salinity - **Energy resources -** Growing energy needs - Renewable and non renewable energy sources - Use of alternate energy sources - Land as a resource - Common property resources - Land degradation - Soil erosion and desertification

**Unit IV: Environmental Pollution** Welfare Measures and Environmental Values - Definition and Classification of Environmental Values - Valuation Methods - Causes, effects and control measures of - Air pollution - Water pollution - Soil pollution - Marine pollution - Noise pollution - Nuclear hazards - Solid Waste Management - Urban and industrial wastes - Pollution control methods - Disaster management - floods, earthquake, cyclone and landslides.

**Unit V: Environmental Problems in India and Government Regulations:** Effects of human activities on the quality of life - Water and River, Ground water - Wasteland reclamation – Energy-Firewood, Animal energy, thermal and Nuclear energy - Access to Common Property Resources (CPR) - Pollution: domestic - Solid waste, Health and Sanitation and Unsafe Drinking water - Design of Environmental Policy - Direct Regulation by Government - Common and Control Instruments - Monitoring and Enforcement of Environmental Regulation.

## **Recommended Text Book(s):**

1. Environmental Studies - R.C. Sharma & Gurpirsancha - Kalyani Publications

## **Recommended Reference Books:**

- 1. Environmental Science William P. Cunniugham Barbara Woodworth Saigo WBC Publishers.
- 2. Environmental Science The way the world works Bernard J. Nebel and Richard T Wright Prentice Hall
- 3. Environmental Science System and Solution Michaell L..L. Mc Kinney Robert, M.Schoch Jones and Barlett Pub
- 4. Introduction to Environmental Science Turk J. Sundees College Pup. Company, Philadelphia
- 5. Ecology and Development in the Third world Countries Routeledge London
- 6. Environment Policy in India S. Singh C.S.E New Delhi
- 7. Environmental Planning Rahul Selman London Thousand Oak New Delhi.