Course Title: ENVIRONMENTAL STUDIES

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 resources -** 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