

SEMESTER- III, JULY 2013 – 2016

I. FUNDAMENTALS OF ENVIRONMENT

Basic definitions, meaning & scope, the need and urgency for studying environmental science, interdisciplinary; types of environment, components of environment and ecosystem, Sustainable development, environmental ethics.

II. GLOBAL ENVIRONMENTAL ISSUES, IMPACTS AND REMEDIAL MEASURES

Lithosphere: Geogenic and anthropogenic sources of environmental degradations, causes and their impacts, Forest resources, land resource and agriculture; Disaster Management; Natural and man-made hazards; case studies.

Atmosphere stratifications and global environmental issues: In the Troposphere: Global environmental issues (Global warming, Acid rain, PC smog, Ozone depletion) and remedial measures. Types and sources of air pollutants; emission and air quality standards, PUC, air pollution control, Case studies.

Hydrosphere: Classification of water ecosystem as lentic and lotic; importance of wetlands; water pollution, point and non-point source of pollution. Physical, chemical and biological parameters of water; water issues and impacts, Case studies.

Noise Pollution – Sound and noise, sources and impacts of Noise Pollution; management of noise pollution.

Radiation Pollution – Sources, Units of radioactivity and radiation dose; biological impact of radiation, radioactive waste disposal. Case Studies.

III. WASTE MANAGEMENT

Solid waste management and disposal: Types and sources of solid wastes, Special reference to E-waste and biomedical waste; recycling of wastes and waste minimization techniques; treatment of water in industries and potable water.

IV. BIODIVERSITY AND CONSERVATION

Biodiversity and Wildlife, present scenario, importance of biodiversity, wetlands and biodiversity; threats and impacts of biodiversity loss; Conservation measures, UN Initiatives. GMO- advantages and disadvantages.

V. POPULATION

Community and Population; Characteristics, carrying capacity and growth curves; demographic transition, Factors affecting human population; Indian and global trend in population, Economic and environmental impacts of over population, Family welfare programme.

SEMESTER IV, Paper Code:ENVS1402 (January-May)

VI. ENVIRONMENTAL POLICIES, LAW AND MANAGEMENT

Environmental Policies and Strategies: International initiatives, international organizations and national policy.

Important Environmental Legislations and case studies.

Environmental Management: Environmental audit; ISO standards, QMS and EMS; Environmental Labeling; Trade and environment; emission trading and carbon credits; carbon sequestration, Carbon capture and storage. Ecotourism and heritage management. Major Environmental Movements.

VII. ENERGY AND ENVIRONMENT

Sun as the ultimate source, solar flux; renewable and non-renewable energy sources, their prospects and limitations. Green building technologies.

VIII. ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Definition, objectives, IAIA; origin and development of EIA in India; structural and functional components in EIA; basic procedures in EIA process; advantages and disadvantages in EIA; guidelines for EIA in India.

IX. MODERN TRENDS IN ENVIRONMENTAL STUDIES

Role of Information Technology, Computer applications: Remote sensing, GPS and GIS in environmental management.

REFERENCE

1. **Basu, R.N**, Environment, University of Calcutta, 2000.
2. **Misra, SP and Pande, SN**, Essential Environmental Studies (3rd Edition), Ane Books Pvt. Ltd., 2011.
3. **Ghosh Roy, MK**, Sustainable Development (Environment, Energy and Water Resources), Ane Books Pvt. Ltd., 2011.
4. **Eldon Enger and Bradley Smith**, Environmental Science: A Study of Interrelationships, Publisher: McGraw-Hill Higher Education; 12th edition, 2010.
5. **Agrawal, KM, Sikdar, PK and Deb, SC**, A Text book of Environment, Macmillan Publication, 2002.
6. **Richard T Wright**, Environmental Science: Towards a Sustainable Future, Prentice-Hall Inc., 2008.
7. **Mitra, A.K, Bhattacharya, S. and Saha, D**, Environmental Studies, St. Xavier's College, Kolkata.
8. **Daniel D. Chiras**, Environmental Science: Creating a Sustainable Future, Jones & Bartlett Publishers; 6th edition, 2001.
9. **Odum, E.P**, Fundamentals of Ecology.
10. **Howard S. Peavy and Donald R. Rowe**, Environmental Engineering, McGraw-Hill International Editions, 1985.
11. **Metcalf & Eddy**, Wastewater Engineering, Tata McGraw-Hill Edition, 1999.
12. **Karpagam, M and Geetha Jaikumar**, Green Management, Theory and Applications, Ane Books Pvt. Ltd., 2010.
13. **Bala Krishnamoorthy**, Environmental Management, PHI learning PVT Ltd, 2012.