ENVIRONMENTAL SCIENCE (B.A) Paper Code:ENVS1402

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,

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, recycling of wastes and waste minimization techniques; Waste Water treatment technologies, Desalination 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.

SEMESTER IV, (January-May) Paper Code:ENVS1301

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.

VI. ENVIRONMENTAL POLICIES, LAW AND MANAGEMENT

Constitutional provisions, *Panchayat* Initiatives; **Environmental Policies and Strategies:** international organizations; International and national policy initiatives.
Important Environmental Legislations with special reference to EPA 1986. Case studies.

Environmental Management: Environmental audit; ISO standards, QMS and EMS; Environmental Labeling; Trade and environment; Ecotourism and heritage management.

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. ECOLOGICAL MOVEMENTS

National and International environmental movements and their contributions towards environmental protection. Basic concepts of sustainable development, environmental ethics, ecological wisdom, environmental justice. Case studies.

REFERENCES

1. **Basu, R.N,** Environment, University of Calcutta, 2000.
2. **Mitra, A.K, Bhttacharya, S. and Saha, D**, Environmental Studies, St. Xavier's College, Kolkata.
3. **Misra, SP and Pande, SN**, Essential Environmental Studies (3rd Edition), Ane Books Pvt. Ltd., 2011.
4. **Ghosh Roy, MK,** Sustainable Development (Environment, Energy and Water Resources), Ane Books Pvt. Ltd., 2011.
5. **Eldon Enger and Bradley Smith,** Environmental Science: A Study of Interrelationships, Publisher: McGraw-Hill Higher Education; 12th edition, 2010.
6. **Agrawal, KM, Sikdar, PK and Deb, SC**, A Text book of Environment, Macmillan Publication, 2002.
7. **Richard T Wright,** Environmental Science: Towards a Sustainable Future, Prentice-Hall Inc., 2008.
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.