VIDYASAGAR UNIVERSITY

ENVIRONMENTAL STUDIES

Under Graduate Syllabus

(3 Tier Examination Pattern)

w.e.f. 2014-2015

REVISED

Vidyasagar University

Midnapore 721 102

West Bengal

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ENVIRONMENTAL STUDIES

FOR UNDER GRADUATE COURSES OF ALL BRANCHES
(Arts, Science & Commerce)

Full Marks -100, Written Examination: 70 Marks, Project Report: 30 Marks

Question Pattern and Distribution of marks for Written Examination:

Time: 3 Hours F.M. 70 Marks

Type 1: Short Answer Type - 20 questions (out of 30) x 2 = 40 Marks
Type 2: Long Answer Type - 3 questions (out of 6) x 10 = 30 Marks

Detailed Syllabus:

Unit 1: The Multidisciplinary nature of environmental studies

- Definition, Nature, Scope and Importance of Environment
- Types and components of environment
- Goals of environmental education
- Environmental ethics
- Global environmental crisis

(5 Lectures)

Unit 2: Natural resources: Renewable and non-renewable resources

- Nature and natural resources – their conservation and associated problems.
- Forest resources – uses, types and importance, deforestation, and effects of deforestation on tribal people; conservation and protection of forest and forest resources; Joint Forest Management.

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- Water resources – Distribution of water on Earth; use and over-utilization of surface and ground water, water resources of India & its future.
- Agricultural resources: World food production & distribution, Food crisis - its causes.
- Livestock resources
- Energy resources: Renewable and Nonrenewable energy sources, use of alternate energy sources, energy conservation
- Land resources: Land as a resource, land degradation, landslides, soil erosion and desertification - causes and effects.
- Wildlife resources
- Use of resources for sustainable development.

(5 Lectures)

Unit 3: Ecology and Ecosystems

- Concept of ecosystem, ecology and biomes.
- Producers, consumers and decomposers
- Energy flow in the ecosystem, energy flow models
- Food chains, food webs and ecological pyramids
- Biogeochemical cycles: Pattern and basic types of biogeochemical cycles (Nitrogen, Phosphorus)

(5 Lectures)

Unit 4: Biodiversity and its conservation

- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use and social values
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts
- Endangered and endemic species of India

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- Conservation of biodiversity: *In situ* and *Ex-situ* conservation of biodiversity
- Biodiversity Acts
- Wildlife management, The Wildlife Protection Act, 1972 : Definitions of Animal, Wildlife, Haunting: Provisions relating to haunting of wild animal, Sanctuary, National park, Community Reserve and Tiger reserve.

(5 Lectures)

Unit 5 : **Environmental Degradation and Pollution**

- Definition, sources, causes, effects and control measures of:
  a. Air pollution
  b. Water pollution
  c. Soil pollution
  d. Noise pollution

- Solid waste management: causes, effects and control measures of biomedical wastes and municipal solid wastes.
- Monitoring of pollution
- Pollution control using biotechnology
- Disaster management: floods, earthquake, cyclone and landslides
- Environmental Impact Assessment (EIA)

(5 Lectures)

Unit 6: Social Issues and the Environment

- Water conservation, rain water harvesting
- Climate change, global warming, acid rain, ozone layer depletion
- Carbon trading
- Wetland resources and their conservation
- National wetland conservation programme with special reference to Ramsar sites

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- Govt. Agencies, viz, CPCB, SPCB and their functions under the Water Act & Air Act. Constitutional provisions for protecting environment - Articles 48 (A), 51A (g)
- The Environment (Protection) Act, 1986
- Air and Water Acts and their role in environmental protection
- Environment Protection Movements in India - Chipko movements, Silent Valley Movements, Movements in Kamataka, Public awareness
- Rural Environment – Problems and their management
- Reducing emissions from deforestation and forest degradation
- (REDD) - Concept

(15 lectures)

Unit 7: Human Population and the Environment

- Definition, characteristics: human population growth, concept of carrying capacity
- Population stabilisation - Family Welfare Programme
- Environment and human health, concept of health and diseases - Examples of common communicable & non-communicable diseases, community health education.
- Uses of Biotechnology

(10 lectures)

Unit 8: Field Work Report / Project Report / Term Paper (based on anyone of the **following topics and to be evaluated by internal teachers only) :**

- Environmental assets - river/ forest/grassland/hill/mountain etc.
- Environmental pollution – Urban/Rural/Industrial/Agricultural
- Study of common plants / insects / birds / wild lives etc.
- Study of simple ecosystems – pond / river / hill slopes, etc.
- Human population & Environment

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- Municipal solid waste management and handling
- Sound pollution
- Public Health, Sanitation and Nutrition
- Renewable Energy Resources
- Pollution from radioactive wastes
- Women and child health
- Health issues of tribal people
- Common Property Resource Management
- Coastal ecosystem
- Disaster management
- Innovative Experiments in resource management
- Environmental Impact Assessment (EIA)

Project/Field Work Report should contain at least 20 A-4 size Pages and appropriate photographs. The report should be preserved in the colleges for future record.

Recommended Books:

1. Erach Bharucha, Textbook for Environmental Studies For Undergraduate Courses of all Branches of Higher Education, University Grants Commission, http://www.ugc.ac.inloldpdf/modelcurriculumlenv.pdf
2. Frank B. Golley, A Primer for Environmental Literacy, Universities Press, 1999.
3. Kiran Chhokar, Mamata Pandya, Meena Raghunathan, Understanding Environment, Sage Publications
4. E.P. Odum. Fundamentals of Ecology. W.B. Saunders Co. USA, 1971.
5. N K Uberoi, Environmental Management, Excel Books.

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6. De A. K., Environmental Chemistry, New Age International Publisher, New Delhi.
7. Sharma P. D., Ecology and Environment, Rastogi Publications, New Delhi.

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