

## PART - I

### SULLABUS FOR ENVIRONMENTAL STUDIES" FOR UNDER GRADUATE

“इन्वायरमेंटल साइंसेस” के पाठ्यक्रम को स्नातक स्तर भाग-एक की कक्षाओं में विश्वविद्यालय अनुदान आयोग के निर्देशानुसार अनिवार्य रूप से शिक्षा सत्र 2003-2004 (परीक्षा 2004) से प्रभावशील किया गया है। स्वशासी महाविद्यालयों द्वारा भी अनिवार्य रूप से अंगीकृत किया जाएगा।

भाग 1, 2 एवं 3 में से किसी भी वर्ष में पर्यावरण प्रश्न-पत्र उत्तीर्ण करना अनिवार्य है। तभी उपाधि प्रदाय योग्य होगी।

पाठ्यक्रम 100 अंको का होगा, जिसमें से 75 अंकर सैद्धांतिक प्रश्नों पर होंगे एवं 25 अंक क्षेत्रीय कार्य (Field Work) पर होंगे।

सैद्धांतिक प्रश्नों पर अंक - 75 (सभी प्रश्न इकाई आधार पर रहेंगे जिसमें आंतरिक विकल्प रहेगा)

(अ) लघु प्रश्नोंत्तीर - 25 अंक

(ब) निबंधात्मक - 50 अंक

Field Work - 25 अंकों का मूल्यांकन आंतरिक मूल्यांकन पद्धति से कर विश्वविद्यालय को प्रेषित किया जावेगा। अभिलेखों की प्रयोगिक उत्तर पुस्तिकाओं के समान संबंधित महाविद्यालयों द्वारा सुरक्षित रखेगे।

उपरोक्त पाठ्यक्रम से संबंधित परीक्षा का आयोजन वार्षिक परीक्षा के साथ किया जाएगा।

पर्यावरण विज्ञान विषय अनिवार्य विषय है, जिसमें अनुत्तीर्ण होने पर स्नातक स्तर भाग-एक के छात्र/छात्राओं को एक अन्य विषय के साथ पूरक की पात्रता होगी। पर्यावरण विज्ञान के सैद्धांतिक एवं फील्ड वर्क में संयुक्त रूप से 33% (तैंतीस प्रतिशत) अंक उत्तीर्ण होने के लिए अनिवार्य होंगे।

स्नातक स्तर भाग-एक के समस्त नियमित/भूतपूर्व/अमहाविद्यालयीन छात्र/छात्राओं को अपना फील्ड वर्क सैद्धांतिक परीक्षा की समाप्ति के पश्चात 10 (दस) दिनों के भीतर संबंधित महाविद्यालय/परीक्षा केन्द्र में जमा करेंगे एवं महाविद्यालय के प्राचार्य/केन्द्र अधीक्षकों/परीक्षकों की नियुक्ति के लिए अधिकृत रहेंगे तथा फील्ड वर्क जमा होने के सात दिनों के भीतर प्राप्त अंक विश्वविद्यालय को भेजेगे।

## PART - I

### SULLABUS FOR ENVIRONMENTAL STUDIES" FOR UNDER GRADUATE

M.M. 75

#### UNIT-I THE MULTI DISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES :

Definition, scope and importance

Need for public awariness.

#### Natural Resources :

#### Renewable and nonrenewable resources :

Natural resources and associated problems.

(a) Forest resources : Use and over-exploitation, deforestation, case studies, Timber extraction, mining, dams and their effects on forests and tribal people.

(b) Water resources : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams benefits and problems.

(c) Mineral resources : Use and exploitation, environmental effects of extracting and

- using mineral resources, case studies.
- (d) Food resources : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
- (e) Energy resources : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.
- (f) Land resources : Land as a resources, land degradation, man induced landslides, soil erosion and desertification.
  - Role of an individual in conservation of natural resources.
  - Equitable use of resources for sustainable life-styles.

**(9 Lecture)**

## **UNIT-II ECOSYSTEMS**

**Concept of an ecosystems.**

**Structure and function of an ecosystem.**

- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the following ecosystem :
  - a. Forest ecosystem
  - b. Grassland ecosystem
  - c. Desert ecosystem
  - d. Aquatic ecosystems (Ponds, streams, lakes, rivers, oceans, estuaries)

## **UNIT-III Biodiversity and its Conservation**

**(9 Lecture)**

- Introduction - Definition : genetic, species and ecosystem diversity.
- Biogeographical classification of India.
- Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values.
- Biodiversity at global, National and local levels.
- India as mega-diversity nation.
- Hot-spots of biodiversity
- Threats to biodiversity : habitat loss, poaching of wildlife, manwildlife conflicts.
- Endangered and endemi species of India.
- Conservation of biodiversity : In situ and Ex-situ

## **UNIT-IV**



- b. Water pollution
- c. Soil pollution
- d. Marine pollution
- e. Noise pollution
- g. Nuclear hazards.
- Solid waste management : Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies
- Disaster management : floods, earthquake, cyclone and landslides.

### **Human Population and the Environment**

- Population growth, variation among nations,
- Population explosion - Family Welfare Programme.
- Environment and human health.
- Human Rights.

**(9 Lecture)**

### **UNIT-V Social Issues and the Environment**

- From Unsustainable to Sustainable development.
- Urban problems related to energy.
- Water conservation, rain water harvesting, watershed management.
- Resettlement and rehabilitation of people, its problems and concerns. Case studies.
- Environmental ethics : Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and Control of Pollution) Act.
- Wildlife Protection Act.
- Forest Conservation Act.
- Issues involved in enforcement of environmental legislation.
- Public awareness.
- Value Education
- HIV/AIDS
- Women and Child Welfare.
- Role of Information Technology in Environment and Human Health.
- Case Studies.

**(9 Lecture)**

### **FIELD WORK**

- Visit to a local area to document environmental assets-river/forest/grassland/hill/mountain.
- Visit to local polluted site : Urban/Rural/Industrial/Agriculture.

- Study of common plants, insects, birds.
- Study of simple ecosystems-pond, river, hill slopes, etc. (Field work Equal to 5 lecture hours)

## REFERENCES :

1. Agarwal K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
  2. Bharucha Erach, the Biodiversity of India, Mapin Publishing Pvt. Ltd. Ahmedabad 380 013, India, Email : mapin@icenet.net(R)
  3. Bruinner R.C., 1989, Hazardous Waste Incineration, Mc Graw Hill Inc. 480p.
  4. Clark R.S., Marine Pollution, Clanderson Press Oxford (TB).
  5. Cuningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 200,
  6. Dr A.K. Environmental Chemisry, Wiley Estern Ltd.
  7. Down to Earth, Centre for Science and Environment (R)
  8. Gloick, H.P. 1993 Water in crisis, Pacific Institute for studies in Deve, Environment & Security. Stockholm Eng. Institute. Oxford Univ, Press. 473p.
  9. Hawkins R.E. Encyclopedia of Indian Natural History, Bombay Natural History Society, Mumbai (R).
  10. Heywood, V.H. & Watson, R.T. 1995 Global Biodiversity Assessment, Cabridge Univ. Press 1140p.
  11. Jadhav H. & Bhosale, V.H. 1995, Environmental Protection and Laws. Himalaya Pub. House. Delhi 284p.
  12. Mckinney M.L. & School R.M. 1996, Environmental Science systems & Solutions, Web enhanced editio, 639p.
  13. Mhaskar A.K., Matter Hazardous, Techno-Science Publication (TB).
  14. Miller T.G. Jr., Environmental Science, Wadsworth Publishing Co. (TB).
  15. Odum, E.P. 1971, Fundamentals of Ecology, W.B. Saunders Co. USA, 574p.
  16. Rao M.N. & Datta, A.K. 1987, Waste Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345p.
  17. Sharma B.K., 2001, Environmental Chemistry, Goel Publ. House, Meerut.
  18. Survey of the Environment, The Hidu (M).
  19. Townsend C., Harper J., and Michael Begon, Essentials of Ecology, Blackwell Science (TB).
  20. Trivedi R.K. Handbook of Environmental Laws, Rules, Guidelinès, Compliances and Standards, Vol. I and II, Environment Media (R).
  21. Trivedi R.K., and P.K. Goel, Introduction to air pollution, Techno-Science Publications (TB).
  22. Wagner K.D., 1998, Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p.
- (M) Magazine  
(R) Reference  
(TB) Textbook.