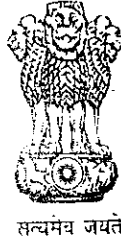




प्रो. (डॉ.) जसपाल एस. सन्धू  
सचिव



विश्वविद्यालय अनुदान आयोग  
**University Grants Commission**

(मानव संसाधन विकास मंत्रालय, भारत सरकार)  
(Ministry of Human Resource Development, Govt. of India)

बहादुरशाह ज़फ़र मार्ग, नई दिल्ली-110002  
Bahadur Shah Zafar Marg, New Delhi-110002

Ph.: 011-23239337-23236288,  
August, 2014  
Fax : 011-23238858, email : jssandhu.ugc@nic.in

**Prof. (Dr.) Jaspal S. Sandhu**  
MBBS, MS (Ortho), DNB, FACS, FASM, FAFSM, FFIVE, FAMS  
D.O. No. F.13-1/2000(EA/ENV/COS-I)  
Secretary

Dear Sir/Madam,

The Hon'ble Supreme Court of India in its order dated 06.12.1999 in WP No. 860/1991 has directed that appropriate steps be taken to introduce environmental studies course in all universities and affiliated colleges.

The University Grant Commission in pursuant to this order had designed a six month module syllabus for environmental studies for undergraduate courses for all branches of higher education to be compulsorily implemented. This was communicated to all universities on 24-07-2003 for strict compliance. In this connection, the UGC has been repeatedly reminding your university for the compliance of the directions of the Hon'ble Supreme Court. The last reminder was sent to you on 02.05.2014 vide D.O. No. F.13-1/2000(EA/ENV/COS.I).

It is brought to your notice that non-implementation of the order of the Hon'ble Supreme Court of India, in its letter and spirit, tantamounts to contempt of court. Once again, I write this to request you to kindly exhort upon your colleagues both in the University and Colleges to take all necessary steps for the implementation of the direction of the Hon'ble Supreme Court. The module on Environmental Studies for undergraduate courses is already available on UGC website ([www.ugc.ac.in](http://www.ugc.ac.in)). In case of failure of your university to do so, the University Grants Commission will be constrained to initiate appropriate action against the University.

It hardly needs any mention that the task of teaching the module on environmental studies be entrusted with the teachers who fulfil the qualifications laid down by the UGC.

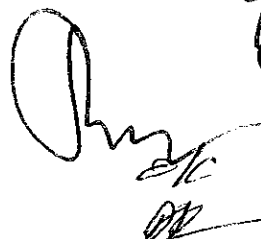
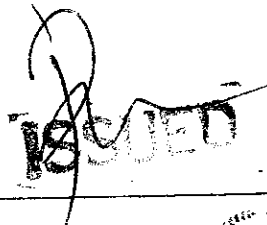
I will appreciate if you kindly apprise the UGC of the actions that you have initiated for the implementation of the direction of the Hon'ble Supreme Court in the current academic session.

With kind regards,

Yours sincerely,

  
(Jaspal Singh Sandhu)

The Vice-Chancellor  
All State University

**Six Months Module Syllabus  
for  
Environmental Studies  
for  
Under Graduate Courses**



**UNIVERSITY GRANTS COMMISSION  
BAHADURSHAH ZAFAR MARG  
NEW DELHI- 110 002**

**2003**

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## VISION

The importance of environmental science and environmental studies cannot be disputed. The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, loss of forest, solid waste disposal, degradation of environment, issues like economic productivity and national security, Global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues. The United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 and world Summit on Sustainable Development at Johannesburg in 2002 have drawn the attention of people around the globe to the deteriorating condition of our environment. It is clear that no citizen of the earth can afford to be ignorant of environmental issues. Environmental management has captured the attention of health care managers. Managing environmental hazards has become very important.

Human beings have been interested in ecology since the beginning of civilization. Even our ancient scriptures have emphasized about practices and values of environmental conservation. It is now even more critical than ever before for mankind as a whole to have a clear understanding of environmental concerns and to follow sustainable development practices.

India is rich in biodiversity which provides various resources for people. It is also basis for biotechnology.

Only about 1.7 million living organisms have been described and named globally. Still many more remain to be identified and described. Attempts are made to conserve them in ex-situ and in-situ situations. Intellectual property rights (IPRs) have become important in a biodiversity-rich country like India to protect microbes, plants and animals that have useful genetic properties. Destruction of habitats, over-use of energy resources and environmental pollution have been found to be responsible for the loss of a large number of life-forms. It is feared that a large proportion of life on earth may get wiped out in the near future.

In spite of the deteriorating status of the environment, study of environment has so far not received adequate attention in our academic programmes. Recognizing this, the Hon'ble Supreme Court directed the UGC to introduce a basic course on environment at every level in college education. Accordingly, the matter was considered by UGC and it was decided that a six months compulsory core module course in environmental studies may be prepared and compulsorily implemented in all the Universities/Colleges of India.

The experts committee appointed by the UGC has looked into all the pertinent questions, issues and other relevant matters. This was followed by framing of the core module syllabus for environmental studies for undergraduate courses of all branches of Higher Education. We are deeply conscious that there are bound to be gaps between the ideal and real. Genuine endeavour is required to minimize the gaps by intellectual and material inputs. The success of this course will depend on the initiative and drive of the teachers and the receptive students.

## **Members of the Expert Committee on Environmental Studies**

1. Prof. Erach Bharucha  
Director  
Bharati Vidyapeeth  
Institute of Environment Education &  
Research, Pune
2. Prof. C. Manoharachary  
Department of Botany  
Osmania University  
Hyderabad
3. Prof. S. Thayumanavan  
Director  
Centre for Environmental Studies  
Anna University, Chennai
4. Prof. D.C. Goswami  
Head, Deptt. of Environment Science  
Gauhati University  
Guwahati-781 014
5. Shri R. Mehta  
Director EE Division  
Ministry of Environment & Forest  
Prayavaran Bhawan, CGO Complex  
Lodhi Road, New Delhi-110 003

### **UGC OFFICIALS**

6. Dr. N.K. Jain  
Joint Secretary  
UGC, New Delhi

**CORE MODULE SYLLABUS FOR ENVIRONMENTAL STUDIES**  
**FOR UNDER GRADUATE COURSES OF ALL BRANCHES**  
**OF HIGHER EDUCATION**

**Unit 1 : The Multidisciplinary nature of environmental studies**

Definition, scope and importance

(2 lectures)

Need for public awareness.

**Unit 2: Natural Resources :**

**Renewable and non-renewable 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 resource, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

(8 lectures)

### Unit 3 : Ecosystems

- Concept of an ecosystem.
- 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)

(6 lectures)

#### **Unit 4 : Biodiversity and its conservation**

- 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 a mega-diversity nation
- Hot-spots of biodiversity.
- Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity.

(8 lectures)

#### **Unit 5 : Environmental Pollution**

##### **Definition**

- Causes, effects and control measures of :-
  - a. Air pollution
  - b. Water pollution
  - c. Soil pollution
  - d. Marine pollution

- e. Noise pollution
- f. Thermal 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.

4

(8 lectures)

#### **Unit 6 : 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.

(7 lectures)

### **Unit 7 : Human Population and the Environment**

- Population growth, variation among nations.
- Population explosion – Family Welfare Programme.
- Environment and human health.
- Human Rights.
- Value Education.
- HIV / AIDS.
- Women and Child Welfare.
- Role of Information Technology in Environment and human health.
- Case Studies.

(6 lectures)

### **Unit 8 : Field work**

- Visit to a local area to document environmental assets-river / forest / grassland / hill / mountain

- Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
- Study of common plants, insects, birds.
- Study of simple ecosystems-pond, river, hill slopes, etc. (Field work Equal to 5 lecture hours)

## SIX MONTHS COMPULSORY CORE MODULE COURSE IN

### ENVIRONMENTAL STUDIES: FOR UNDERGRADUATES

#### **Teaching Methodologies**

The Core Module Syllabus for Environmental Studies includes class room teaching and Field Work. The syllabus is divided into eight units covering 50 lectures. The first seven units will cover 45 lectures which are class room based to enhance knowledge skills and attitude to environment. Unit eight is based on field activities which will be covered in five lecture hours and would provide students first hand knowledge on various local environmental aspects. Field experience is one of the most effective learning tools for environmental concerns. This moves out of the scope of the text book mode of teaching into the realm of real learning in the field, where the teacher merely acts as a catalyst to interpret what the student observes or discovers in his/her own environment. Field studies are as essential as class work and form an irreplaceable synergistic tool in the entire learning process.

Course material provided by UGC for class room teaching and field activities be utilized.

The universities/ colleges can also draw upon expertise of outside resource persons for teaching purposes.

Environmental Core Module shall be integrated into the teaching programmes of all undergraduate courses.

**Annual System:** The duration of the course will be 50 lectures. The exam will be conducted along with the Annual Examination.

**Semester System:** The Environment course of 50 lectures will be conducted in the second semester and the examinations shall be conducted at the end of the second semester.

**Credit System:** The core course will be awarded 4 credits.

**Exam Pattern:** In case of awarding the marks, the question paper should carry 100 marks. The structure of the question paper being:

Part-A, Short answer pattern	-	25 marks
Part-B, Essay type with inbuilt choice	-	50 marks
Part-C, Field Work	-	25 marks

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(M) Magazine

( R )Reference

(TB) Textbook