| Semester :II | Internal Marks: 100 | | | |
|---|---|---|---|---|
| **COURSE CODE** | **COURSE TITLE** | **CATEGORY** | **HRS/WEEK** | **CREDITS** |
| **22UGEVS** | **ENVIRONMENTAL STUDIES** | **ABILITY ENHANCEMENT COMPULSORY COURSE** | **2** | **2** |

**Course Objective**

To train the students to get awareness about total environment and its related problems and to make them to participate in the improvement and protection of the environment.

**Course Outcome and Cognitive Level Mapping**

On the successful completion of the course, students will be able to

| CO Number | CO Statement | Cognitive Level |
|---|---|---|
| CO1 | Outline the nature and scope of environmental studies | K1, K2 |
| CO2 | Illustrate the various types of natural resources and its importance. | K2 |
| CO3 | Classify various types of ecosystem with its structure and function. | K2, K3 |
| CO4 | Develop an understanding of various types of pollution and biodiversity. | K3 |
| CO5 | List out the various types of social issues related with environment and explain protection acts | K4, K5 |

**Mapping of CO with PO and PSO**

| Cos | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 | PO1 | PO2 | PO3 | PO4 | PO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 |
| CO3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 2 |
| CO4 | 2 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 |
| CO5 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 | 3 |

"1" – Slight (Low) Correlation "2" – Moderate (Medium) Correlation

"3" – Substantial (High) Correlation "-" indicates there is no correlation

**Syllabus**

| UNIT | CONTENT | HOURS | COS | COGNITIVE LEVEL |
|---|---|---|---|---|
| I | Introduction to environmental studies Definition, scope and importance. Need for public awareness | 06 | CO1, CO2, CO3, CO4 | K1, K2, K3, |
| II | **Natural Resources: Renewable and non-renewable resources:**<br>a. Forest resources: use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests andtribal people.<br>b. Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams benefits and problems.<br>c. Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.<br>d. Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity.<br>e. Energy resources: Growing energy needs, renewable and non-renewable energy sources,use of alternate energy sources. Case studies.<br>f. Land resources: Land as resources, land degradation, man induced Landslides, soil erosion and desertification.<br>g. Role of an individual in conservation of natural resources. | 06 | CO1, CO2, CO3, CO4 | K1, K2, K3 |
| III | **Ecosystems**<br>Concept, Structure and function of an ecosystem. Producers, consumers and decomposers<br>Energy flow in the ecosystem and Ecological succession.<br>Food chains, food webs and ecological pyramids Introduction, types, characteristic features, structure and function of the following ecosystem:-Forest ecosystem, Grassland ecosystem and Desert ecosystem, Aquatic ecosystems, (ponds, streams, lakes, rivers, oceans, estuaries) | 06 | CO1, CO2, CO3, CO4 | K1, K2, K3 |
| IV | **Biodiversity and Environmental Pollution**<br>Introduction, types and value of biodiversity. 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<br>Ex-situ conservation of biodiversity. Definition, Causes, effects and control measures of: | 06 | CO1, CO2, CO3, CO4, CO5 | K1, K2, K3, K4, K5 |

| | | | | |
|---|---|---|---|---|
| | a. Air Pollution<br>b. Water Pollution<br>c. Soil Pollution<br>d. Noise pollution<br>e. Nuclear hazards<br>Solid waste Management: Causes, effects and controlmeasures of urban and industrial wastes. E-WasteManagement: Sources and Types of E-waste. Effect of E-waste on environment and humanbody. Disposal of E-waste, Advantages of Recycling E-waste.<br>Role of an individual inprevention of pollution. Disaster management:floods, earthquake, cyclone and landslides. | | | |
| V | **Social Issues and the Environment**<br>Water conservation, rain water harvesting, watershed management. Climate change, global warming, acid rain, ozone layer depletion, Wasteland reclamation.<br>**Environment Protection Act**<br>Wildlife Protection Act. Forest Conservation Act. Population explosion – Family Welfare Programmes Human Rights - Value Education. HIV/ AIDS - Women and Child Welfare. Role of Information Technology in Environment and human health. | 06 | CO1,<br>CO2,<br>CO3,<br>CO4,<br>CO5 | K1,<br>K2,<br>K3,<br>K4,<br>K5 |
| VI | **Self-Study for Enrichment**<br>**(Not to be included for End Semester Examination)**<br>Global warming – climate change – importance of ozone – Effects of ozone depletion. Biogeography – history, ecology and conservation. International laws and policy | - | CO1,<br>CO2,<br>CO3,<br>CO4,<br>CO5 | K1,<br>K2,<br>K3,<br>K4,<br>K5 |

**References**


1. Beard, J.M. 2013. Environmental Chemistry in Society (2nd edition). CRC Press.
2. Girard, J. 2013. Principles of Environmental Chemistry (3rd edition). Jones & Bartlett.
3. Brebbia, C.A. 2013. Water Resources Management VII. WIT Press.
4. Pandit, M.K. &Kumar, V. 2013. Land use and conservation challenges in Himalaya: Past, present and future. In: Sodhi, N.S., Gibson, L. & Raven, P.H. Conservation Biology: Voices from the Tropics. pp. 123-133. Wiley-Blackwell, Oxford, UK (file:///Users/mkpandit/ Downloads /Raven%20et%20al.%202013.%20CB%20Voices %20from %20Tropics%20(2).pdf ) .
5. Hites, R.A. 2012. Elements of Environmental Chemistry (2nd edition). Wiley & Sons.
6. Harnung, S.E. & Johnson, M.S. 2012. Chemistry and the Environment. Cambridge University Press.
7. Boeker, E. & Grondelle, R. 2011. Environmental Physics: Sustainable Energy and Climate Change. Wiley.
8. Forinash, K. 2010. Foundation of Environmental Physics. Island Press.
9. Evans, G.G. & Furlong, J. 2010. Environmental Biotechnology: Theory and Application (2nd edition). Wiley-Blackwell Publications.
10. Williams, D. M., Ebach, M.C. 2008. Foundations of Systematics and Biogeography. Springer
11. Pani, B. 2007. Textbook of Environmental Chemistry. IK international Publishing House.
12. Agarwal, K.C. 2001 Environmental Biology, Nidi Public Ltd Bikaner.

**Pedagogy**

Chalk and talk, PPT, Discussion, Assignment, Quiz, Seminar

**Course Designer**

Dr.B.Thamilmaraiselvi

Ability Enhancement Compulsory Course II (AECC) : Environmental Studies (22UGEVS)

Assessment Rubrics for 100 Marks

1. Documentary (or) Poster Presentation (or) Elocution-25 Marks

2. Quiz (or) MCQ Test-25 Marks

3. Album Making (or) Case study on a topic (or) Field Visit -25 Marks

4. Essay Writing (or) Assignment (Minimum 10 pages) -25 Marks

There will be no End Semester Examination for this course. However, the subject teacher will evaluate the above mentioned components based on the performance of the students and submit the marks out of 100 (in the format to be supplied by the COE) with the approval of the concerned Head of the Department to the COE along with CIA marks of other courses.