

## Teaching process (Dr. Shivesh Berwal):

### 1<sup>st</sup> Month:

- 1) Introduction to Environment Studies:
  - ✓ Multidisciplinary nature of environmental studies;
  - ✓ Components of environment: atmosphere, hydrosphere, lithosphere, and biosphere
  - ✓ Scope and importance;
  - ✓ Concept of sustainability and sustainable development;
  - ✓ Brief history of environmentalism
- 2) Ecosystem:
  - ✓ Definition and concept of Ecosystem
  - ✓ Types of Ecosystems: Tundra, Forest, Grassland, Desert, Aquatic (ponds, streams, lakes, rivers, oceans, estuaries)

Following teaching mode was used in these units:

PowerPoint presentation to students

Videos

News/articles

Some references used (articles/news/case studies):

<https://sdgs.un.org/goals>

<https://www.youtube.com/watch?v=HkZDSqyEldo>

<https://www.youtube.com/watch?v=ey7XGdPC2nw>

Doubt session class was taken and also first part of assignment/project was discussed (plantation part).

## **2<sup>nd</sup> Month:**

### 3) Ecosystem (contd.):

- ✓ Structure of ecosystem (biotic and abiotic components); Functions of Ecosystem: Physical (energy flow), Biological (food chains, food web, ecological succession), and Biogeochemical (nutrient cycling) processes, ecological pyramids.
- ✓ Ecosystem services (Provisioning, Regulating, Cultural, and Supporting); Ecosystem preservation and conservation strategies

### 4) Natural Resources:

- ✓ Land resources
- ✓ Water resources
- ✓ Energy resources
- ✓ Case studies

First class test was taken and the second task of the assignment/project was discussed (Biodiversity field/virtual trip). Also, small topic related to environment was taken by students on which they have to give presentation for 5 minutes (topic will be of their choice). This activity is done so as to interact with every student of class in online mode.

## **3<sup>rd</sup> Month:**

### 5) Biodiversity & its conservation:

- ✓ Concept of biodiversity
- ✓ India as a mega-biodiversity nation
- ✓ Values of biodiversity
- ✓ Threats to biodiversity
- ✓ Biodiversity conservation strategies
- ✓ Case studies

Some references used (articles/news/case studies):

<https://www.conservationindia.org/articles>

<https://www.youtube.com/watch?v=kTZe8CtQEZQ&t=2609s>

6) Environmental Pollution:

- ✓ Environmental pollution (Air, water, soil, thermal, and noise): causes, effects, and Controls
- ✓ Nuclear hazards and human health risks
- ✓ Solid waste management
- ✓ Pollution case studies

Some references used (news/articles):

<https://www.theguardian.com/world/2017/nov/07/delhi-india-declares-pollution-emergency-as-smog-chokes-city>

<https://science.thewire.in/health/air-pollution-infant-deaths-2019-study/>

<https://www.thehindu.com/news/cities/Delhi/delhi-govt-begins-spraying-bio-decomposer-to-tackle-stubble-burning/article36955651.ece>

<https://www.sciencedirect.com/science/article/pii/S2666765720300119?via%3Dihub>

Human health effects of air pollution by M. Kampa, E. Castanas / Environmental Pollution 151 (2008) 362e367

The teaching mode was through referred books, PowerPoint presentations and news/articles/case studies. Doubt session class was taken and presentation was started from students. Field virtual trip was conducted for Yamuna biodiversity park on 15<sup>th</sup> January, 2021. The link for virtual trip is: <https://meet.google.com/pfh-xcvt-tpz?hs=122&authuser=1>

**4<sup>th</sup> Month:**

7) Global environmental issues and policies:

- ✓ Causes of Climate change, Global warming, Ozone layer depletion, and Acid rain
- ✓ International agreements and programmes
- ✓ Sustainable Development Goals

- ✓ Environment legislation in India
- 8) Human Communities and the Environment:
  - ✓ Human population growth
  - ✓ Environmental movements
  - ✓ Environmental justice
  - ✓ Environmental philosophy
  - ✓ Environmental communication and public awareness
  - ✓ Case studies

The teaching mode was through referred books, PowerPoint presentations and news/articles/case studies. Doubt session class was taken after each unit and presentation started from students was continued. Second class test was also taken.

Assignment was collected from each student. Previous year question papers were discussed with them. Internal marks were told to each student (class test and project/assignment). Format for question paper was discussed and their doubts were cleared if any from syllabus.

### **Teaching methods:**

Classroom lectures, video presentations, virtual trip and ICT enabled teaching tools like PPT teaching, Webinars, online sources, news, articles, YouTube videos, additional readings, question paper discussion etc.

### **Some books used for study content:**

- Textbook of Environmental Studies for Undergraduate Courses by Erach Bharucha.
- Perspectives in Environmental Studies by Anubha Kaushik.
- Odum, E.P., Odum, H.T., and Andrews, J. (1971). Fundamentals of Ecology.
- Raven, P.H., Hassenzahl, D.M., Hager, M.C., Gift, N.Y. and Berg, L.R. (2015). Environment, 9<sup>th</sup> Edition.
- Gadgil, M., and Guha, R. (1993). This Fissured Land: An Ecological History of India.