# ARSDCollege,UniversityofDelhi

## ModelCourseHandout/LessonPlan

| CourseName: (CBCS) B.Sc.(Industrial Chemistry) | | | | | | |
|---|---|---|---|---|---|---|
| **Semester** | **Course Code** | **CourseTitle** | **Lecture (L)** | **Tutorial (T)** | **Practical (P)** | **Credit (C)** |
| I | 2181001001 | AEC 1 : Environmental Science : Theory into Practice | 1 | 0 | 1 | 2 |
| Teacher/Instructor(s) | | Dr.Anita Singh | | | | |
| Session | | 2022-23 | | | | |

**CourseObjective:**

- This compulsory course on Environmental studies at undergraduate level (AEC) aims to train students to cater to the need for ecological citizenship through development of strong foundation on critical linkages between ecology and environment-society-economy
- . This will add values in the overall development of the students

**CourseLearningOutcomes:**

The course will empower the undergraduate students by helping them to:

- Gain in-depth knowledge on natural processes and resources that sustain life and govern economy .
- Understand the consequences of human actions on web life , global economy and quality of human life .
- Develop critical thinking for shaping strategies (scientific, social, economic, administrative , and legal) for environmental protection, conservation of biodiversity, environmental equity, and sustainable development.
- Acquire values and attitudes towards understanding complex environmental-economic-social challenges, and active participation in solving current environmental problems and preventing the future ones.
- Adopt sustainability as a practice in life, society, and industry.

**LessonPlan:**

| UnitNo. | Learning Objective | LectureNo. | Topics to be covered |
|---|---|---|---|
| 1& 2 | Introduction to Environmental Studies & Ecosystem | 1-2 | Multidisciplinary nature, Components of environment. |
| | | 3-4 | Scope and importance and sustainable development. |
| | | 5-6 | Concept of Ecosystem. |
| | | 7-8 | Types of Ecosystem |
| | | 9-10 | Structure of Ecosystem |
| | | 11,12,13 | Function of Ecosystem |
| | | 14,15,16. | Ecosystem services |

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|---|---|---|---|
| 3 and 4 | Natural Resources and Environmental Pollution and Control | 17,18,19,20,21,22,23 | Land Resources, Water Resources, Energy Resources |
| | | 24,25, 26 | Contemporary Indian Issues related to mining, dam building etc. |
| | | 27,28, 29 | Environmental pollution:Primary and Secondary pollutants.Causes,Effects and Control of air,water soil,thermal and noise pollution. Nuclear hazards, Human health risks and Solid waste management |
| | | 30,31, 32,33, 34 | Pollution control measures:Introduction to legal, biological and physico-chemical methods ; Role in sustainability and Pollution case studies. |

**EvaluationScheme:**

| No. | Component | Duration | Marks |
|---|---|---|---|
| 1. | InternalAssessment<br>• ClassTest (10)<br>• Attendance (5)<br>• Assignment (10) | | 10 |
| 2. | EndSemesterExamination | 1hr.45mins. | 50 |

| Details of the Course | | |
|---|---|---|
| **Unit** | **Contents** | **Contact Hours** |
| 1 & 2 | **Introduction**<br><br>Components of Environment:atmosphere,hydrosphere,lithosphere, and biosphere.<br>Concept of sustainability and sustainable development; Brief history of environmentalism.<br><br>**Ecosystem**<br><br>Structure ( Biotic and Abiotic components ), function (physical; energy flow), Biological(food chain, food web, ecological succession) and Biogeochemical (nutrient cycling) processes of Ecosystem . Types of Ecosystem and services. Basics of Ecosystem restoration . | 4<br><br>12 |
| 3 and 4 | **Natural Resources**<br><br>Land : Minerals, soil, agricultural crops, natural forest , land cover , land use change, land degradation, soil erosion, and desertification. Causes of deforestation etc.<br><br>Water: Natural and man made sources of water, uses , overexploitation of surface and ground water , flood, drought,international and interstate conflicts over water.<br><br>Energy: Renewable and non renewable energy source , use of alternate energy sources, growing energy need,and energy contents<br><br>**Environmental Pollution**<br><br>Air, Water, soil , thermal and noise :causes, effect,and control and Primary and secondary air pollutants . Air and water quality standards and related case studies . Nuclear hazard, control measures of various types of urban, industrial ,electronic wastes. Waste segregation and disposal . Related case studies<br><br>Pollution control measures: Introduction to legal, biological and physic-chemical methods; Role in sustainability | 10<br><br>8 |
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**Suggested Books:**

| Sl.No. | NameofAuthors/Books/Publishers | Year ofPublication/ Reprint |
|---|---|---|
| 1. | Interface: A Textbook for AECC in Enviromental studies, Divan S , Rosencranz , A. Environmental Law and Policy in India | 2002 |
| 2. | Raven , P.H. Hassenzhl, 8th Edition. Wiley publishing USA | 2015 |