Sushant University Erstwhile Ansal University Gurugram	School of Engineering & Technology Course Outline		
Course Title: Environmental Studies		**Course Code: EVS2111**	
Semester: II	**Academic Year: 2022-23**	**Core/Elective: Core**	**Credits: 2**
Course Designed by: Dr. Monika Khurana E-mail: monikakhurana@sushantuniversity.edu.in		**Course Instructor: Dr. Monika Khurana** E-mail: monikakhurana@sushantuniversity.edu.in	
Pre-requisites: None			

1. Course Objectives

The broad objectives of this course are to

- Familiarise with the concepts fundamental to environmental studies
- Understand the complexity of ecosystems and possibly how to sustain them
- Identify the relationships between humans and the environment.
- Explain major environmental problems including their causes and consequences.
- Discuss current and controversial environmental issues and possible solutions to environmental problems and their pros and cons.

2. Course Outcomes

Upon successful completion of the course, the students should be able to:

CO1: Gain knowledge on the importance of environmental education and ecosystem.
CO2: Discuss about environmental pollution- sources, effects and control measures of environmental pollution.
CO3: Understand the treatment of wastewater and solid waste management.
CO4: Find importance with respect to biodiversity, its threats and its conservation and appreciate the concept of interdependence.
CO5: Describe the national and international concern for environment for protecting the environment.

3. Syllabus **Total Hrs.: 30**

Unit 1: Introduction to environmental studies **(2 lectures)**

- Multidisciplinary nature of environmental studies
- Scope and importance; Concept of sustainability and sustainable development.

Unit 2: Ecosystems **(4 lectures)**

- What is an ecosystem?

Structure and function of ecosystem;
Energy flow in an ecosystem: food chains, food webs and ecological succession.
Case studies of the following ecosystems:
a) Forest ecosystem
b) Grassland ecosystem
c) Desert ecosystem
d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 3: Natural Resources: Renewable and Non-renewable Resources (4 lectures)

- Land resources and land-use change; Land degradation, soil erosion and desertification.
- Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
- Water: Use and over – exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state), Dams – benefits and problems.
- Food resources: World food problems, changes caused by agriculture and over-grazing, effects of modern agriculture, fertilizer-pesticide problems, waterlogging, salinity.
- Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies

Unit 4: Biodiversity and Conservation (3 lectures)

- Levels of biological diversity: genetic, species and ecosystem diversity; Bio-geographic zones of India; Biodiversity patterns and global biodiversity hotspots.
- India as a mega-biodiversity nation; Endangered and endemic species of India, threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions.
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.

Unit 5: Environmental Pollution (5 lectures)

- Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution
- Nuclear hazards and human health risks
- Solid waste management: Control measures of urban and industrial waste.
- Pollution case studies

Unit 6: Environmental Policies & Practices (4 lectures)

- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture
- Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD).
- Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.

Unit 7: Human Communities and the Environment **(4 lectures)**

- Human population growth: Impacts on environment, human health and welfare. Resettlement and rehabilitation of project affected persons; case studies.
- Disaster management: floods, earthquake, cyclones and landslides.
- Water conservation, rain water harvesting, watershed management.
- Wasteland reclamation.
- Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan.
- Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.
- Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).

Unit 8: Field Work **(4 lectures)**

- Visit to an area to document environmental assets: river/forest/flora/fauna, etc.
- Visit to a local polluted site – Urban/Rural/Industrial/ Agricultural.
- Study of common plants, insects, birds and basic principles of identification.
- Study of simple ecosystems – pond, river, Delhi Ridge, etc.

4. Course References

Text Book:

1. Chawla S., 2012. A Textbook of Environmental Studies, Tata Mc Graw Hill, New Delhi.

Reference Books:

1. Jadhav, H & Bhosale, V.M., 1995. Environmental Protection and Laws. Himalaya Pub. House, New Delhi.
2. Gadi R., Rattan, S., 2006. Environmental Studies, KATSON Books, New Delhi.
3. Mckinney, M.L. & School, R.M., 1996. Environmental Science Systems & Solutions, Web enhanced edition.
4. Wanger K.D., 1998. Environmental Management. W.B. Saunders Co. Philadelphia, USA

5. Evaluation Components

S.No	Exam	Marks	Duration	Coverage / Scope of Examination
1	Test -1 (Mid-Term)	15	1 hour	Syllabus covered up to Mid-Semester
2	Test -2 (End-Term)	60	2 hours	Entire Syllabus

3.	Tutorials / Assignments, Quizzes, Attendance/Field Work/Project	25	Entire Semester	Quiz(s)/presentation(s)/ Field Work- 15 Assignment - 10
Theory	*A student will need to get at least 40 marks out of a maximum of 100 to be considered passed.*			