

Environmental Science

Course Title	Environmental Science
Course Code	PT206
Course Credit	Lecture:3
	Practical: 0
	Total:3

Course Learning Outcomes.

At the end of the semester students are able to:

- **Understand** and **realize** the multidisciplinary nature of the environment, its components, and interrelationship between man and environment.
- **Comprehend** the importance of ecosystem, biodiversity and natural bio geo chemical cycle.
- **Correlate** the human population growth and its trend to the environmental degradation and develop the awareness about his/her role towards environmental protection and prevention.
- **Identify** different types of environmental pollution and control measures.
- **Develop** practice to make lifestyle eco-friendly.

Detailed Syllabus

Sr. No.	Name of chapter & Details	Hours Allotted
Section – I		
Unit-1	Introduction of Environment <ol style="list-style-type: none"> I. Definition and scopes of Environment II. Components of Environment. III. Importance of Environmental Science for Concern Educational Field. IV. Technology of Clean technology. V. Man Environment Relationship. 	06
Unit-2	Ecological Aspects of Environment <ol style="list-style-type: none"> I. Concept of Ecology & Eco System II. Structure of Eco System III. Bio-Geo-Chemical Cycle <ul style="list-style-type: none"> • Water Cycle • Nitrogen cycle • Carbon Cycle • Oxygen Cycle • Sulphur Cycle IV. Food Chain , Food Web V. Ecological Pyramid and their Types. 	08

	VI. Biodiversity & Biodiversity Index	
Unit-3	Water and Air Pollution I. Sources of Water II. Type of Impurities in waste water III. Removal Method of Impurities <ul style="list-style-type: none"> ▪ Suspended Particles (Settling, Co-agulation, Filtration) ▪ BOD, COD and Organic Impurities (CaOCl₂, Cl₂, CaCO₃) ▪ Inorganic Impurities (Soda Lime, Hot Soda, Ion- Ex change.) IV. Water Treatment Plant V. Water Quality Std by 'WHO' VI. Structure of Atmosphere VII. Sources of Air Pollutant. VIII. Control of Industrial Air Pollution <ul style="list-style-type: none"> ▪ Bag House Method ▪ Cyclone Separator ▪ Scrubber. ▪ Catalytic Converter ▪ ESP(Electro Static Precipitator) IX. Current Air quality Standards by WHO. X. Prevention of Water & Air Pollution	13
Section II		
Unit-4	Noise & Land Pollution. I. Noise & Sound Levels II. Types of Noise & Effect on Human III. Control of Noise Pollution IV. Structure of Lithosphere V. Classification of Solid Waste Base on Sources: <ul style="list-style-type: none"> ▪ Domestic Solid Waste ▪ Commercial Solid Waste ▪ Industrial Solid Waste ▪ Institutional Solid Waste ▪ Bio Medical Solid Waste ▪ Agriculture Solid Waste ▪ Electronic Solid Waste ▪ Radioactive Solid Waste VI. 4 R Principle VII. Disposal of Solid Waste <ul style="list-style-type: none"> ▪ Land Fill. ▪ Incineration. ▪ Vermicomposting. 	12
Unit-5	Natural Resources I. Natural resources and associated problems II. Renewable & Non Renewable Resources.	08

	III. Use, Overuse & management of: Forest Resources Water Resources Mineral Resources Energy Resources	
Unit-6	Human Population Dynamic I. Population Growth II. Exponential Population Growth III. Logistic Population Growth IV. Demographic Projection of Human Population V. Calculation of Population by <ul style="list-style-type: none"> ▪ Arithmetic Progression Method ▪ Geometrical Progression Method ▪ Incremental Increase Method ▪ Declining Growth Method 	07

Instructional Method:

1. Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
2. Assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval.
3. Surprise tests/Quizzes/Tutorials will be conducted.

Reference Books:

1. Textbook of Environmental Studies for Undergraduate Courses by Erach Bharucha Second Edition, 2013 Publisher: Universities Press (India) Private Ltd, Hyderabad.
2. Basics of Environmental Studies by Prof Dr N S Varandani ,2013 Publisher: LAP Lambert Academic Publishing , Germany
3. Environmental Studies by Anindita Basak ,2009 Publisher: Drling Kindersley(India)Pvt. Ltd Pearson
4. Textbook of Environmental Studies by Deeksha Dave & S S Kateva , Cengage Publishers.
5. Environmental Sciences by Daniel B Botkin & Edward A Keller Publisher: John Wiley & Sons.
6. Environmental Studies by R. Rajagopalan, Oxford University Press
7. Environmental Studies by Benny Joseph, TMH publishers
8. Environmental Studies by Dr. Suresh K Dhameja, 2007 Published by : S K Kataria & Sons New Delhi
9. Basics of Environmental Studies by U K Khare, 2011 Published by Tata McGraw Hill