RK UNIVERSITY

SYLLABUS

Course Title	**ENVIRONMENTAL STUDIES**
Course Code	PH217
Course Credit	Lecture : 4
	Practical : 0
	Tutorial : 0
	Total : 4

Course Objectives

- At the end of the semester students are able to...

1. Understand and realize the multidisciplinary nature of the environment, its components, and interrelationship between man and environment.
2. Comprehend the importance of ecosystem, biodiversity and natural bio geo chemical cycle.
3. 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.
4. Identify different types of environmental pollution and control measures.
5. Develop practice to make lifestyle eco-friendly.

Detailed Syllabus

Sr. No.	Name of Chapter & Details	Hours Allotted
	Section I	

1	**Introduction of Environment** 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.	**08**
2	**Ecological Aspects of Environment** **i.** Concept of Ecology & Eco System **ii.** Structure of Eco System **iii.** Bio-Geo-Chemical Cycle • Water Cycle • Nitrogen cycle • Carbon Cycle • Oxygen Cycle • Sulphur Cycle **iv.** Food Chain , Food Web **v.** Ecological Pyramid and their Types. **vi.** Biodiversity & Biodiversity Index	**09**
3	**Water and Air Pollution** **i.** Sources of Water **ii.** Type of Impurities in waste water **iii.** Removal Method of Impurities • Suspended Parties (Settling, Co-agulation, Filtration) • BOD, COD and Organic Impurities ($CaOCl_2$, Cl_2, $CaCO_3$) • Inorganic Impurities (Soda Lime, Hot Soda, Ion- Ex change.) **iv.** Water Treatment Plant **v.** Water Quality Std by 'WHO' **vi.** Structure of Atmosphere	**13**

	vii. Sources of Air Pollutant. **viii.** Control of Industrial Air Pollution • 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	
	Section II	
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 ▪ 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	**12**

	▪ Land Fill. ▪ Incineration. ▪ Vermicomposting.	
5	**Natural Resource** **i.** Natural resources and associated problems **ii.** Renewable & Non Renewable Resources. **iii.** Forest Resources, Water Resources, Mineral Resources, Energy Resources (Use, Overuse & Management)	**04**
6	**Human Population Dynamic** **i.** Population Growth **ii.** Exponential Population Growth **iii.** Logistic Population Growth **iv.** Demographic Projection of Human Population **v.** Global Environmental problems. (GHE, Acid rain, Ozone depletion) **vi.** Calculation of Population by ▪ Arithmetic Progression Method ▪ Geometrical Progression Method ▪ Incremental Increase Method ▪ Declining Growth Method	**14**

Instructional Method and Pedagogy:

- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- 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.

- Surprise tests/Quizzes/Tutorials will be conducted.

Students Learning Outcomes:

- To know continuing problems of pollution, loss of forest, solid waste disposal, degradation of environment, issues like economic productivity and national security.
- To understand Global warming, the depletion of ozone layer and loss of biodiversity, & its impact on environmental issues.

Text Books:

1. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380 013, India, Email:mapin@icenet.net (R).

Reference Books:

1. Textbook of Environmental Studies for Undergraduate Courses by Erach Bharuch 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 Hil

Additional Resources

- Soft copies Environmental studies books are available on UGC and AICTE website.
- Latest information regarding to Environmental studies are available on http://www.pharmainfo.net.
- Soft copies of Environmental studies subjects presentation and material are available on http://www.authorstream.com and on http://www.slideshare.com.