

**KADI SARVA VISHWAVIDYALAYA
GANDHINAGAR**



**ENVIROMENTAL SCIENCE
SUB CODE: UE101**



Kadi Sarva Vishwavidyalaya

(With Effect From: Academic Year 2017-18)

LEARNING OBJECTIVES:

The educational objectives of this course are

- To create awareness, acquire knowledge such that students manage their society properly inculcate skills for identifying problems associated with environment and develop ability to evaluate participate in environmental protection activities that is helpful to all living things.

Semester-I & II ENVIRONMENTAL SCIENCE

Teaching scheme				Total Credit	Evaluation Scheme					Total
L	T	P	Total		Theory		Mid Sem Exam	CIA	Pract.	
Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	
02	00	00	02	02	03	70	30	20	00	120

Out Line of the Course:

Sr. No.	Title of the Unit	Minimum Number of Hours
1	Introduction to environment, Ecology and Ecosystem	4
2	Ecology & Ecosystem	8
3	Population & Natural Resources	8
4	Environmental Pollution	8
5	Social Issues	2

Total hours (Theory): 30 Hours

Total hours (Practical): 00 Hours

Total hours: 30 hours



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Unit No	Topics	Lectures (Hours)	Percentage weight
1.	Introduction to environment, Ecology and Ecosystem Definition and inter-relationships amongst and between them, components of environment, Relationship between different components, Man- Environment relationship, Impact of Technology on the environment, Environment education, Environment degradation	4	08%
2.	Ecology & Ecosystem Introduction : Ecology – objectives & classification Concept of an ecosystem – structure & function of ecosystem Component of ecosystem – Producers , Consumers , Decomposer Bio-Geo chemical cycle – Hydrological cycle, Carbon cycle, Oxygen cycle, Nitrogen cycle, Sulfur cycle, Phosphorus cycle Energy flow in ecosystem Food chain , Food web Ecological Pyramid Major Ecosystem : Forest ecosystem , Grassland ecosystem, Desert ecosystem, Aquatic ecosystem, Estuarine ecosystem	8	30%
3.	Population & Natural Resources Population: Development of habitation patterns and environmental factor governing human settlement, Causes of overpopulation Natural Resources : Renewable & Non renewable resources : Renewable Resources, Non renewable resources, destruction v/s conservation Water resources: surface & ground water resources, use & overuse of water resources, problem due to overexploitation of water resources Forest resources : Importance of forest use of forest products, forest types, deforestation ,forest degradation in india Energy resources: conventional energy resources & its problem, non conventional energy resources, problem due to to over exploitation of energy resources. Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity	8	25%
4.	Environmental Pollution	8	21%



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	Types of environmental pollution Water pollution : Introduction, water quality standards, sources of water pollution, classification of water pollutants, effects of water pollutants, eutrophication Air Pollution: Composition of air, structure of atmosphere, Ambient Air quality standards, classification of air pollutants, sources of common air pollutants like SPM, SO ₂ , NO _x Land & Noise Pollution: Introduction, Lithosphere, Land use, Causes of land degradation, sources of noise pollution, effects of noise pollution		
5.	Social Issues global issues: global warming, acid rain, ozone layer depletion, nuclear accident	2	08%
Total		30	100%

Instructional Method and Pedagogy:

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lectures and laboratory which carries 5 Marks weightage.
- Two internal exams will be conducted and average of the same will be converted to equivalent of 15 Marks as a part of internal theory evaluation.
- 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. It carries a weightage of 5 Marks as a part of internal theory evaluation.
- Surprise tests/Quizzes/Seminar will be conducted which carries 5 Marks as a part of internal theory evaluation.

Students Learning Outcomes:

On the successful completion of the course the students will be able

- To understand basics about environment and its related recent problems.
- To identify environmental issues around them.
- To make the people aware, around them, about environment protection & improvement and thus creating awareness amongst the society.

Reference Books:

- Environmental Studies: R. Rajagopalan, Oxford University Press



Kadi Sarva Vishwavidyalaya

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- Environmental Pollution: Causes, Effects & Control by K.C Agrawal
- Environmental Science by Richard T Wright & Bernard J Nebel
- Environmental Science by Daniel B Botkin & Edward A Keller
- Environmental Engineering & Management by Suresh K Dameja
- Environmental Management by Dr. Swapan C Deb
- Environment & Ecology by Dr Gourkrishna Dasmohapatra
- Introduction to Environmental Engineering and Science by Master Gilbert M.

Web Materials:

1. [http://nptel.iitm.ac.in/courses/Webcourse-contents/IIT Delhi/Environmental%20Air%20Pollution/index.htm](http://nptel.iitm.ac.in/courses/Webcourse-contents/IIT%20Delhi/Environmental%20Air%20Pollution/index.htm)
2. <http://nptel.iitm.ac.in/video.php?subjectId=105104099>
3. <http://www.epa.gov>
4. <http://www.globalwarming.org.in>