



**Subject:** Environmental Science – BCAXX12205

**Type of course:** Value Added Courses (VAC)

**Prerequisite:** Basic knowledge of environment and ecology.

**Rationale:** To inculcate the environmental values translating into pro-conservation actions. Honorable Supreme Court of India has made it 'mandatory' to introduce a basic course on environment at the undergraduate level.

**Teaching and Examination Scheme:**

Teaching Scheme			Credits	Examination Marks			Total Marks
CI	T	P		C	SEE	CCE	
			MSE			ALA	
2	0	0	2	50	20	30	100

*Legends: CI-Classroom Instructions; T – Tutorial; P - Practical; C – Credit; SEE - Semester End Evaluation; MSE- Mid Semester Examination; V – Viva; CCE-Continuous and Comprehensive Evaluation; ALA- Active Learning Activities.*

2 Credits \* 25 Marks = 50 Marks (each credit carries 25 Marks)

SEE 50 Marks will be converted in to 25 Marks

CCE 50 Marks will be converted in to 25 Marks

It is compulsory to pass in each individual component.



**Continuous Assessment:**

Sr. No	Active Learning Activities	Marks
1	<b>Environmental Issues :</b> Case study on India's environmental issues given by faculty. Analysis and outcome will be submitted by students in GMIU web portal.	10
2	<b>Click &amp; Quote</b> Submit Three photos in GMIU web portal with appropriate quotes of environment Issues.	10
3	<b>Do for life:</b> Student should participate in social activity related to the environment and submit selfie /photographs in.	10
Total		30

**Course Content:**

Unit No.	Course content	Hrs	% Weightage
1	<b>Environment and Ecosystem :</b> <b>Environment and Environmental studies:</b> Definition, concept, components (Atmosphere, Hydrosphere, Lithosphere, Biosphere) and importance. <b>Ecosystem and Ecology:</b> Structure and Function of ecosystem, Forest ecosystem (Indian forest ecosystem: Coniferous forest, Evergreen tropical forest, Deciduous forest (Monsoon forest), Mangrove forest and Tropical thorn forest) Food chain, food web and ecological pyramids.	8	25
2	<b>Environmental pollution</b> Definition, causes, effects and control measures of: a. Air pollution b. Water pollution c. Plastic waste and its hazards. d. Noise pollution e. E-Waste	8	25



3	<p><b>Renewable energy</b> Energy Resources: Renewable and Non-Renewable energy sources</p> <p>Introduction, applications, Advantages and limitations of Renewable energy.</p> <p>1) Solar energy 2) Wind energy 3) Tidal energy 4) Biogas Plant.</p>	8	25
4	<p><b>Social issues and environmental legislation :</b></p> <p>a. The Wildlife Protection Act,1972 b. The Water (Prevention and Control of Pollution) Act,1974 c. The Air (Prevention and Control of Pollution) Act,1981 d. The Environment (Protection) Act, 1986 e. Forest Conservation Act, 1980 f. The Biological Diversity Act, 2002</p>	8	25

**Suggested Specification table with Marks (Theory):50**

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	35%	40%	25%	0	0	0

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

**Course Outcome:**

After learning the course the students should be able to:	
CO1	Understand the key Environmental concepts and Ecosystem.
CO2	Identify and analyze Environmental Pollution and its impacts on environment.
CO3	Enhance the knowledge on how the renewable energy can be used as a further alter of conventional energy resources.
CO4	Know about environmental legislation and how conserve or preserve environment.



### **Instructional Method:**

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory

The internal evaluation will be done on the basis of Active Learning Assignment

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

### **Reference Books:**

- [1] Environmental studies by Benny Joseph, Tata MCgraw-Hill-2005
- [2] Environmental studies by Dr. D.L. Manjunath, Pearson Education-2006
- [3] Environmental studies by R. Rajagopalan, Oxford Publication-2005
- [4] Principles of Environmental Science by Cunningham. W.P. & Cunningham M.A., TataMcGraw Hill Publishing Co. Ltd., New Delhi.
- [5] Textbook of Environment & Ecology by Deeksha Dave and S.S. Katewa, Cengage Learning India Pvt. Ltd., Patparganj, Delhi, 2009

