Gyanmanjari
Innovative University

Course Syllabus
Gyanmanjari Pharmacy college
Semester-3 (B.Pharm.)

Subject: Environmental Science - BPHBP13314

Type of course: AEC (Ability Enhancement Course)

Prerequisite: NA

Rationale: Environmental Science is the scientific study of the environmental system and the status of its inherent or induced changes on organisms. It includes not only the study of physical and biological characters of the environment but also the social and cultural factors and the impact of man on environment.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
CI	T	P	C	Theory Marks		Practical Marks		CA	
				ESE	MSE	V	P	ALA	
02	00	00	02	35	15	-	-	-	50

Legends: CI-Classroom Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.

Course Content:

Sr. No	Course content	Hrs	Weightage %
1.	**Environment and Environmental studies**: Definition, concept, components - a. Atmosphere b. Hydrosphere c. Lithosphere d. Biosphere, importance, Need for Public Awareness and Public Awareness for Environment Management.	7	25%
2.	**Ecosystem.** Introduction, Concept of ecosystem, structure and function of the ecosystems, Types of ecosystem: **A.** Terrestrial Ecosystem (Forest ecosystem, Grassland ecosystem, Desert ecosystem **B.** Aquatic ecosystems (Fresh water ecosystem, Marine ecosystem, Estuarine ecosystem)	8	25%
3.	**Natural Resources :** Renewable and non-renewable resources: a. Forest resources b. Water resources c. Deforestation d. Food resources	8	25%
4.	**Environmental Pollution:** a. Air pollution b. Water pollution c. Soil pollution d. Noise Pollution E. E-West	7	25%

Suggested Specification table with Marks (Theory):35

Distribution of Theory Marks **(Revised Bloom's Taxonomy)**					
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	50%	50%	00	00	00	00

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	Implement practices that promote resource conservation and reduce environmental degradation.
CO2	Understanding Ecosystem Structure and Function.
CO3	Identify various types of natural resources, including renewable resources (such as Forests, Water) and non-renewable resources (such as Minerals, Food).
CO4	Analyze the environmental, social, economic, and public health implications of pollution incidents, including their distribution, magnitude, and severity at local, regional, and global scales.

Instructional Method:

The course delivery method will depend upon the requirement of content and the needs of students. The teacher, in addition to conventional teaching methods by black board, may also use any 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 the laboratory.

Reference Books:

[1] Y.K. Sing, Environmental Science, New Age International Pvt, Publishers, Bangalore

[2] Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.

[3] Bharucha Erach, The Biodiversity of India, Mapin Pu blishing Pvt. Ltd., Ahmedabad – 380 013, India.

[4] Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p

[5] Clark R.S., Marine Pollution, Clanderson Press Oxford

[6] Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p

[7] De A.K.. Environmental Chemistry, Wiley Eastern Ltd. 8. Down of Earth, Centre for Science and Environment