Environmental Science

Syllabus for all UG Programme

(With effect from the year 2018-2019)

Department of Chemistry

Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya

(University established under sec 3 of UGC Act 1956)

(Accredited with "A" by NAAC)

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Semester	Branch	Sub. Code	Title of the Paper	L	P	T	Credits
I	B.Sc.Mathematics	UM105	Principles of Environmental Science	3	-	1	4
I	B.Sc.Chemistry	BCHF181T40	Principles of Environmental Science	3	-	1	4
I	B.Sc.Physics	PH1P5	Principles of Environmental Science	3	-	1	4
III	B.Sc.Comp.Sci	BS307	Basics of Environmental Science	3	-	1	4
I	B.A. English	BENF171T50	Environmental Studies	3	-	1	4
I	B.A. Sanskrit	SA303	Principles of Environmental Science	3	-	1	4
II	B.Com	BC206	Principles of Environmental Science	3	-	1	4
II	B.B.A	BB206	Principles of Environmental Science	3	-	1	4
III	B.C.A	CC308	Basics of Environmental Science	3	-	1	4
II	BE/B.Tech	CMCCH28T50	Environmental Science and Engineering	2	-	-	1

Aim:

- *To understand about our environment.*

Objectives:

- *To familiarize the students with basic concepts of environment and creating awareness.*
- *To understand their role and responsibility of an individual in the environmental conservation.*

Outcome:

- *Students are expected to be aware about the environment and pollution problems.*

Unit - 1: Introduction to environment and environmental studies (15 hrs)

1.1. Introduction to environment – components – nature of environment - need of awareness – reasons for environmental problems – anthropocentric and eco centric views.
1.2. Environmental studies - multidisciplinary nature – scope and aim – sustainabledevelopment-principles – RRR concept-Indian environmental movements – environmental calendar.

Unit – 2: Ecosystem and Biodiversity (15 hrs)

2.1. Ecosystem – structure – functions – simplified ecosystem models (food chain and food webs and their types, energy flow) - forest – grassland – pond –ecosystems – ecological succession - ecological pyramids – Bio-geochemical cycles of water – oxygen-carbon-phosphorous and sulphur.
2.2. Biodiversity – definition – types – species – genetic and ecosystem diversities- values of biodiversity – threats to biodiversity – conservation of biodiversity – endemism – biodiversity hotspots – Indian biodiversity– endemic species of India – IUCN lists -red-green and blue data books.

Unit – 3: Natural resources (15 hrs)

3.1 Natural resources – definition – types – forest resources – uses –deforestation- reasons - effects

–water resources – dams – effects of dams - food resources – modern agriculture– ill effects - energy resources- types – hydel –nuclear – solar –wind and biomass energy - world scenario – Indian scenario.

3.2 Population and environment – reasons for over exploitation of resources – population – demography – population curves – population explosion – effects – consumerism – effects – urbanization – reasons and effects- role of an individual.

Unit – 4: Environmental Pollution (15 hrs)

4.1 Pollution – definition – types – air pollution – causes and effects – effects of CO_2 – CO – NOx –SOx – particulates – control of air pollution – water pollution – causes – effects – remedies – soil pollution – solid waste management – e waste – ill effects of e-waste – proper recycling- Noise pollution – reasons – effects – control – nuclear pollution – cases – effects and control –thermal pollution causes – effects and remedies.

4.2 Legal provisions for protecting environment – article 48 A – 51 A (g) – Environment act 1986 – Air act 1981 – Water act 1974 – wild life protection act – Forest act 1980- problems in implementation–reasons.

Unit – 5: Social issues and environmental ethics (15 hrs)

5.1 Present environmental scenario – greenhouse effect – climate change – The Kyoto Protocol – ozone layer depletion-The Montreal Protocol - acid rain – causes – effects - disparity among the nations – The Copenhagen UNFCCC summit – carbon currency- virtual water- genetically modified organisms, Disaster management.

5.2 Environmental ethics – introduction – people getting affected - resettlement andrehabilitation – issues involved –Sardhar Sarovar project – Tawa Matsya sang - Melting icebergsof Arctic.

Text Book

Anubha Kaushik and C.P. Kaushik," Prospects of Environmental Science", New AgeInternational publishers, 2013.

Reference books

1. Environmental Studies, N. Nandini, N. Sunitha and Sucharita Tandon, Sapna Book House,2007.
2. Text book of Environmental Science, Ragavan Nambiar, Scitech Publications, 2009.
3. Text book of Environmental Chemistry and Pollution Control, S.S.Dara, S.Chand and Co.,2002.
4. Environmental Chemistry, Colin Baird, W.H.Freeman and company, New York,1999.
5. Environmental Chemistry, Gary W. VanLoon and Stephen J.Duffy, Oxford UniversityPress, 2000.
6. New Trends in Green Chemistry, V.K. Ahluwalia and M. Kidwai, Anamaya Publishers,2006.