Course Code CHY1002	Environmental science	Course Type	LT
		Credits	3
Prerequisite:	Nil		

Course Objectives:

1. To make students understand and appreciate the unity of life in all its forms, the implications of life style on the environment.
2. To understand the various causes for environmental degradation.
3. To understand individuals contribution in the environmental pollution.
4. To understand the impact of pollution at the global level and also in the local environment

Course Outcomes:

Students will be able to

- develop respect for nature and living beings and to help maintain ecological balance
- acquire basic knowledge about global climate change with a particular reference to the Indian context.
- find ways to protect the environment and play pro-active roles

Student Outcomes (SO):	**A, h,j**

Module No	Module Description	Hrs.	SO
1	**Ecosystem:** Key environmental problems and their basic causes; Ecosystem, earth – life support system and ecosystem components; Energy flow in ecosystem; Ecological succession; Nutrient, phosphorous, carbon, nitrogen, cycles; Effect of human activities on these cycles. Urban ecology.	5	a
2	**Biodiversity:** Importance, types, mega-biodiversity; Species interaction - Extinct, endemic, endangered and rare species; Hot-spots; GM crops; Threats to biodiversity: Natural and anthropogenic activities; Conservation: Terrestrial and aquatic biodiversity.	5	h,j
3	**Environmental pollution and climate change** Environmental hazards: Biological, Chemical, Nuclear; Risk and evaluation of hazards; Types of pollution: Air and water – Pollution sources, effects and mitigation. Water quality management and its conservation; Water footprint and virtual water, Solid waste management; Climate disruption and ozone depletion (Kyoto protocol, Carbon sequestration methods and Montreal Protocol –Effect of climate change on lives on earth. Carbon credit, carbon audit.	5	j
4	**Natural Resources** Water resources – properties of water, pH, conductivity, colour, use of surface and subsurface water; Water contamination from	5	a,h

	industries, Domestic water pollution. Water management practices. Energy resources - oil, Natural gas, Coal, Nuclear energy. Energy efficiency and renewable energy. Solar energy, Hydroelectric power, Ocean thermal energy, Wind and geothermal energy. Energy from biomass, solar-Hydrogen revolution. Natural resources and economics of India.		
5	**Environmental Impact Assessment** Introduction to environmental impact analysis. EIA guidelines, Notification of Government of India (Environmental Protection Act – Air, water, forest and wild life). Impact assessment methodologies. Public awareness. Environmental priorities in India and sustainable development. Importance of Agriculture.	**5**	j,h
6	**Human Population and Environment** Urban environmental problems; Consumerism and waste products; Promotion of economic development – Impact of population age structure – Women and child welfare, Women empowerment. Sustaining human societies: Economics, environment, policies and education.	**5**	a,h
	Total	**30**	

Text Books:	
1.	G. Tyler Miller and Scott E. Spoolman (2013), Environmental Science, 14th Edition, Cengage learning.
2.	George Tyler Miller, Jr. and Scott Spoolman (2012), Living in the Environment – Principles, Connections and Solutions, 17th Edition, Brooks/Cole, USA.
Reference Books:	
1.	David M. Hassenzahl, Mary Catherine Hager, Linda R. Berg (2011), Visualizing Environmental Science, 4thEdition, John Wiley & Sons, USA.

Recommendation by the Board of Studies on	22-04-2017
Approval by Academic council on	
Compiled by	Dr. S. Arockiasamy