

15CY102	PRINCIPLES OF ENVIRONMENTAL SCIENCE		L	T	P	C
			2	0	0	2
	Total Contact Hours - 30					
	Prerequisite					
Nil						
<b>PURPOSE</b>						
The course provides a comprehensive knowledge in environmental science, environmental issues and the management.						
<b>INSTRUCTIONAL OBJECTIVES</b>						
To enable the students						
1.	To gain knowledge on the importance of environmental education and ecosystem.					
2.	To acquire knowledge about environmental pollution- sources, effects and control measures of environmental pollution.					
3.	To understand the treatment of wastewater and solid waste management.					
4.	To acquire knowledge with respect to biodiversity, its threats and its conservation and appreciate the concept of interdependence.					
5.	To be aware of the national and international concern for environment for protecting the environment					

### **UNIT I- ENVIRONMENTAL EDUCATION AND ECOSYSTEMS**

**(6 hours)**

Environmental education: Definition and objective. Structure and function of an ecosystem – Ecological succession –primary and secondary succession . Ecological pyramids – pyramid of number, pyramid of energy and pyramid of biomass.

### **UNIT II- ENVIRONMENTAL POLLUTION**

**(6 hours)**

Environmental segments – structure and composition of atmosphere . Pollution – Air, water, soil , thermal and radiation. Effects – acid rain, ozone layer depletion and green house effect. Control measures . Determination of BOD, COD, TDS and trace metals.

### **UNIT III- WASTE MANAGEMENT**

**(6 hours)**

Waste water treatment (general) – primary, secondary and tertiary stages. Solid waste management: sources and effects of municipal waste, bio medical waste - waste management.

### **UNIT IV- BIODIVERSITY AND ITS CONSERVATION (6 hours)**

Introduction: definition - genetic, species and ecosystem Diversity. Bio diversity hot spots. Values of biodiversity: consumptive use, productive use,

social, ethical, aesthetic and option values - threats to biodiversity: habitat loss, poaching of wildlife – endangered and endemic species of India, Conservation of biodiversity: in-situ and ex-situ conservations.

## **UNIT V- ENVIRONMENTAL PROTECTION**

**(6 hours)**

National concern for environment: Important environmental protection acts in India – water, air (prevention and control of pollution) Act, wild life conservation and forest act.

Functions of Central and State Pollution Control boards. International effort – key initiatives of Rio declaration, Vienna convention, Kyoto protocol and Johannesburg summit.

### **TEXT BOOKS**

1. Kamaraj.P & Arthanareeswari.M, “*Environmental Science – Challenges and Changes*”, 4<sup>th</sup> Edition, Sudhandhira Publications, 2010.
2. R.Jeyalakshmi, ‘Principles of environmental science, Devi publications, 2<sup>nd</sup> ed., 2008.
3. Kurian Joseph , R.Nagendran, ‘Essentials of Environmental Studies’, Pearson Education, 2<sup>nd</sup> ed.,2005

### **REFERENCES**

1. De.A.K., “*Environmental Chemistry*”, New Age International, New Delhi, 1996.
2. Helen P Kavitha, “*Principles of Environmental Science*”, Sci tech Publications, 2<sup>nd</sup> Edition, 2008.
3. Sharma.B.K. and Kaur, “*Environmental Chemistry*”, Goel Publishing House, Meerut, 1994.

**15CY102 – PRINCIPLES OF ENVIRONMENTAL SCIENCE**

<b>Course designed by</b>		<b>Department of Chemistry</b>										
1	Student outcome	a	b	c	d	e	f	g	h	i	j	k
				x		x	x		x	x	x	
2	Mapping of instructional objective with student outcome			5		2	4		1,3	3	2, 5	
3	Category	General (G)		Basic Sciences (B)			Engineering Sciences and Technical Arts (E)		Professional Subjects (P)			
				x			--		--			
		--		--			--		--		--	
4	Approval	23 <sup>rd</sup> meeting of Academic Council, May 2013										