ANNEXURE-I

SYLLABUS FOR ENVIRONMENTAL SCIENCE R-23

COMMON TO ALL BRANCHES OF B. TECH FIRST YEAR

Subject Code	Title of the subject	L	T	P	C	
	ENVIRONMENTAL SCIENCE	2	0	0	2	

Course Educational Objectives	
CEO1	Provide information on some of the important international conventions which will be useful during the future endeavours.
CEO2	Make realize the importance of natural resources management for the sustenance of the life and the society.
CEO3	Apprise the impact of pollution on the environment and Provide the concept of e-waste, plastic waste and safety management
Course Outcomes: ***Upon successful completion of this course, students will be able to:***	
CO1	Understand the fundamental aspects of environmental issues and challenges.
CO2	Interpret the importance of natural resources management for the sustenance of the life and the society.
CO3	Explain various forms of pollution and its impact on the environment.
CO4	Implement the importance of the Environmental Protection Act in society.
CO5	Explain the elements of sustainable development, energy and safety management
CO6	Analyze different types of environmental hazards and their management

CO-PO & PSO Mapping

COs	PROGRAMME OUTCOMES												
	1	2	3	4	5	6	7	8	9	10	11	12	
CO1	1						3						
CO2	1					2	2						
CO3	1						3					1	
CO4	1					2	2						
CO5	1						2					1	
CO6	1					1	2					1	
AVG	**1**					**1.6**	**2.3**					**1**	**1.4**

SYLLABUS

UNIT:01 Environment and its Components **(6 Hours)**

Ecosystem: Concept of an ecosystem. - Structure and function of an ecosystem; Producers, consumers and decomposers. Environmental gradients, Tolerance levels of environmental factors.

Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards.

Solid Waste Management: Biomedical, Hazardous and e-waste management.

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UNIT:02 Multidisciplinary Nature of Environmental Studies **(6 Hours)**

Importance of multilateral agreement: Stockholm and Rio Summit.

Global Environmental Challenges: Global warming and climate change, acid rains, ozone layer depletion, population growth and explosion, eutrophication.

UNIT:03 Natural Resources and its Conservation **(6 Hours)**

Introduction and classification of resources: land resources (formation of soil, soil erosion);

Water resources (Sources of fresh water, causes for the depletion of water resources);

Forest resources (Deforestation, consequences of deforestation)

Renewable and nonrenewable resources, Conventional and non-conventional energy resources.

UNIT:04 Environmental Legislation **(6 Hours)**

Environmental Protection Act -Air (Prevention and Control of Pollution) Act.; Water (Prevention and Control of Pollution) Act; Wildlife Protection Act -Forest Conservation Act.

Environmental impact Assessment: Origin and procedure of EIA, project screening for EIA, Scoping studies.

UNIT:05 Safety Management **(6 Hours)**

Occupational Safety and Health Acts, Safety procedures, Type of Accidents, Chemical and Heat Burns, Prevention of Accidents involving Hazardous Substances, and Human error. Hazard control measures, Fire prevention, detection and extinguishing fire, Electrical Safety, Product Safety, Safety management, Personal Protective Equipment.

Teaching Methods: Chalk & Board/PPT/Video Lectures/Journals Reference

Text Books:

1. Environmental Engineering, G. Kiely, TMH, 2007
2. Environmental Engineering by Prof B.K. Mohapatra, Seven Seas Publications, 2015

Reference Books:

1. Environmental Studies, R. Rajagopalan, 3rd Edition, 2015, Oxford University Press.
2. Environmental Studies, P. N. Palanisamy, P. Manikandan, A. Geetha, and K. Manjula Rani; Pearson Education, Chennai. 2015
3. A Textbook of Environmental Studies, Shaashi Chawla, McGraw Hill Education, 2017
4. Industrial Safety Management, L. M. Deshmukh, Tata McGraw Hill Publication, 2005
5. Environmental Engineering and Safety , Raut & Sen, Scientific Publishers, 2017

BoS Approved
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