



|| Jai Sri Gurudev ||
Sri Adichunchanagiri Shikshana Trust (R)
SJB Institute of Technology



BGS Health and Education City, Dr. Vishnuvardhana Road, Kengeri, Bengaluru-560060

Approved by AICTE, New Delhi.

Autonomous Institute affiliated to Visvesvaraya Technological University, Belagavi

Accredited by NAAC with 'A+' grade, Certified by ISO 9001 - 2015

Recognized by UGC, New Delhi with 2(f) & 12 (B)

Semester:	I/II	Course Type:	HSMC	
Course Title: Environmental Studies				
Course Code:	23ENVH02	Credits:	01	
Teaching Hours/Week (L:T:P)		1:0:0:0	Total Hours:	15
CIE Marks:	50	SEE Marks:	50	Total Marks: 100
SEE Type:	Theory		Exam Hours:	2
I.Course Objectives:				
<ol style="list-style-type: none"> To create environmental awareness among the students. To gain knowledge on different types of pollution in the environment. 				
II.Teaching-Learning Process (General Instructions):				
<p>These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.</p> <ol style="list-style-type: none"> Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills. Environmental awareness program for the in-house campus Encourage collaborative (Group Learning) Learning in the class. Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills. 				
III.COURSE CONTENT				
Module-1				3 Hours
<p>Introduction to Environmental Studies: Introduction: Environment - Components of Environment Ecosystem: Types & Structure of Ecosystem, Balanced ecosystem Human Activities – Food, Shelter, And Economic & Social Security.</p> <p>Impacts of Agriculture & Housing Impacts of Industry, Mining & Transportation Environmental Impact Assessment, Sustainable Development.</p> <p>Textbook: Bharucha, E. (2015). Textbook of Environmental Studies</p> <p>RBT Levels: L1, L2</p>				
Module-2				3 Hours
<p>Natural Resources: Water resources – Availability & Quality aspects, Water borne diseases & water induced diseases, Fluoride problem in drinking water Mineral resources, Forest Wealth Material Cycles – Carbon Cycle, Nitrogen Cycle & Sulphur Cycle.</p> <p>Energy – Different types of energy, Conventional sources & Non Conventional sources of energy Solar energy, Hydro electric energy, Wind Energy, Nuclear energy, Biomass & Biogas Fossil Fuels, Hydrogen as an alternative energy.</p> <p>Textbook: “Environmental Studies”, by Benny Joseph</p> <p>RBT Levels: L1, L2</p>				
Module-3				3 Hours
<p>Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution.</p> <p>Waste Management & Public Health Aspects: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.</p> <p>Textbook: Environmental Science- Principles and Practices, by Das R.C</p> <p>RBT Levels: L1, L2</p>				
Module-4				3 Hours

Global Environmental Concerns (Concept, policies and case-studies): Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.

Textbook: “Environmental Studies – From Crisis to Cure” by R Rajagopalan

RBT Levels: L1, L2

Module-5

3 Hours

Latest Developments in Environmental Pollution Mitigation Tools (Concept and Applications) G I S. & Remote Sensing, Environment Impact Assessment, Environmental Management Systems ISO14001; Environmental Stewardship- NGOs.

Field work: Visit to an Environmental Engineering Laboratory or Green Building or Water Treatment Plant or Waste water treatment Plant; ought to be Followed by understanding of process and its brief documentation

Textbook: Environmental and Pollution Science. Pepper I.L., Gerba C.P. & Brusseau M.L.

RBT Levels: L1, L2

IV. COURSE OUTCOMES

CO1	To identify the major challenges in environmental issues and evaluate possible solutions.
CO2	Develop analytical skills, critical thinking and demonstrate socio-economic skills for sustainable development.
CO3	To analyze an overall impact of specific issues and develop environmental management plan.

V.CO-PO-PSO MAPPING (mark H=3; M=2; L=1)

PO/PSO	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2	S3	S4
CO1	3					2						2				
CO2	3	2					2					2				
CO3	3	2				2	2					2				

VI. Assessment Details (CIE & SEE)

General Rules: Refer Annexure Section 5

Continuous Internal Evaluation (CIE): Refer Annexure Section 5

Semester End Examination (SEE): Refer Annexure Section 5

VII. Learning Resources

VII(a): Textbooks

Sl. No.	Title of the Book	Name of the author	Edition and Year	Name of the publisher
1	Textbook of Environmental Studies	Bharucha, E.	(2015)	-
2	Environmental Studies	Benny Joseph	2nd Edition, 2012	Tata Mc Graw – Hill.
3	Environmental Studies – From Crisis to Cure	R Rajagopalan	2005	Oxford Publisher
4	Environmental Science-Principles and Practices	Das, R.C.	2008	I Ed., Printice Hall of India, New Delhi.
5	Environmental and Pollution Science.	Pepper, I.L., Gerba, C.P. & Brusseau, M.L.	2006	Elsevier Academic Press.

VII(b): Reference Books

1	Principals of Environmental Science and Engineering	Raman Sivakumar	2 nd Edition, 2005	Cengage learning, Singapur.
2	Fundamentals of Ecology.	Odum, E.P., Odum, H.T. & Andrews, J.	1971	-
3	Environmental Pollution and Control	Vesilind, P.J., Peirce, J.J., & Weiner R.F	1990.	.Butterworth-Heinemann, USA

VII(c): Web links and Video Lectures (e-Resources):

<https://www.youtube.com/watch?v=or-z0Q03pcY>

<https://www.youtube.com/watch?v=qS8mfAX1tAk>

VIII: Activity Based Learning / Practical Based Learning/Experiential learning:

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