



In addition to Part – I (General Handout for all courses appended to the timetable) this portion gives further specific details regarding the course.

Course No. : BITS F225
Course Title : ENVIRONMENTAL STUDIES
Instructor-in-charge : Ruchi Jain Dey
Instructor : Murari R R Verma; R Krishnan

Scope of the course:

The United Nations Conference on Environment and Development (UNCED) held in Rio De Janeiro in 1992, and the 1994 conference on United Nations Framework Convention on Climate Change (UNFCCC), and a very recent 2015 Paris Agreement have all drawn the attention of people around the globe to the condition of our environment. It is clear that no citizen of the earth can afford to be ignorant of the environmental issues.

Recognizing this fact, the Hon'ble Supreme Court of India directed the University Grants Commission to introduce a basic course on environment for every student enrolled for undergraduate education in India. Hence the course is designed in such a manner that all aspects of environment [Biological systems (flora & fauna), air, water, soil & geography, society, economy and aesthetics] are to be covered.

1. Objective of the course:

This course is of interdisciplinary nature where social, biological and engineering aspects of environment would be dealt with. The biotic and abiotic aspects of environment, the impact of anthropogenic activities on the environment and other physical, ecological, socio-political and economic issues will be discussed with appropriate real life examples and case studies in the course. The course would also briefly introduce students from different backgrounds to various concepts in air pollution, water pollution and solid waste management. It would also provide a student to have an engineering based solution to such issues. The course aims to impart learning through lectures, class room and field based self/ group activities in the immediate environment, exposure to internet resources, and other forms of multimedia on the subject.

2. Text book (TB):

Bharucha, E., 2013. *Textbook for Environmental Studies for Undergraduate Courses*. 2nd Ed. Universities Press.
<https://www.ugc.ac.in/oldpdf/modelcurriculum/env.pdf>

Reference Book (RB):

1. Centre for Science and Environment, 2017. *Environment Reader for Universities*. CSE.
2. Wright, R. T. & Boorse, D. F., 2012. *Environmental Science-Towards a Sustainable Future*. 11th Ed. Prentice Hall.
3. Davis, M. L. & Cornwell, A. D., 2014. *Introduction to environmental Engineering*. McGraw Hill Education.
4. Masters, G. M. & Ela, W. P., 2008. *Introduction to Environmental Engineering Science*. PHI.
5. Miller, T. G. & Spoolman, S. E., 2013. *Environmental Science*. 14th Ed. Cengage Learning.

5. Course Plan:

Lecture No.	Learning objectives	Topics to be covered	Chapter in the Text Book	Dept
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1	Multidisciplinary nature of environmental studies	Definition, Scope and Importance, Need for Public Awareness, Institutions and significant contribution of pioneers in environmental conservation.	1-T1, 4-R1, 1-R2	All
2-5	Concept of ecosystems and its features	Ecosystems: Types and Function Food and ecological pyramids	3-T1, 1-R1, 2-R2	Biological Sciences
6-9	Human population and environment	Dynamics of natural populations (growth curves), Mechanisms of population equilibrium (predator-prey and competitive relationships), Evolution as a force for change, Human population growth and health, Challenges to development (cost of modernization), Role of information Technology in Environment and human health.	7-T1; 4,5,6-R2	
10-14	Biodiversity and its conservation	Introduction, Bio-geographical classification of India, Value of biodiversity, Biodiversity at global, National and local levels, India as a mega-diversity nation, Hot-spots of biodiversity, Threats to biodiversity, Endangered and endemic species of India, Conservation of biodiversity	4-T1; 10,11-R2	
15-21	Natural resources and the impact of man-made activities on them	Natural resources and associated problems in forest resources, Water resources, Mineral resources, Food resources, Energy resources, Land resources; Role of an individual in conservation of natural resources; Equitable use of resources for sustainable lifestyles	2-T1, 2-R1, 2-R2	
22 -28	Environmental pollution	Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Thermal pollution, Nuclear hazards; Solid waste Management: Causes, effects and control measures of urban and industrial wastes, waste to energy concept; Case studies	5-T1; 5,7,9,10,11 & 12 - R3; 5,6,7,8,9 R4	Chemistry
29-35		Role of an individual in prevention of pollution: Acts pertaining to Environment; Issues involved in enforcement of environmental legislation EIA, Disaster management: floods, earthquake, cyclone and landslides.		Civil Engineering
36-42		Unsustainable to Sustainable development, Urban problems related to energy; Water conservation, rain water harvesting, watershed management, resettlement and rehabilitation of people; its problems and concerns; Environmental ethics: Issues and possible solutions, Wasteland reclamation, Consumerism and waste products, Global issues like Climate change, nuclear accidents, acid deposition and holocaust, Public awareness, Value Education	6-T1, 1-4R1	

6. Evaluation scheme:

<i>Evaluation component</i>	<i>Duration</i>	<i>%</i>	<i>Date and time</i>	<i>Nature of the Component*</i>
Mid Semester Examination	90 Mnts.	25	05.10.19 (3.30 – 5.00 PM)	CB
Projects	Diverse	40	Continuous Evaluation	OB
Comprehensive Examination	3 Hr.	35	14.12.19 (AN)	CB

*OB: Open book, CB: Closed book

7. Chamber consultation hour:

To be announced in the class.

8. Grading policy:

Award of grades will be guided in general by the histogram of marks. Decision on border line cases will be taken based on individual's sincerity, student's regularity in attending classes, and the section instructor's assessment of the student.

9. Make-up policy:

Make-up for Mid semester examination will be given only in genuine (medical emergency) cases of absence. If the absence is anticipated, before the examination, prior letter from hostel warden should be forwarded to IC for permission. Request for make-up should reach the Instructor-in-charge at the earliest. Make-up for projects are not given. Also refer to Clause 4.07 of *BITS Academic Regulations* for more details.

Notices:

All notices/ announcements regarding this course shall be displayed in Course Management System (CMS).

10. Academic Honesty and Integrity Policy: Academic honesty and integrity are to be maintained by all the students throughout the semester and no type of academic dishonesty is acceptable.

Ruchi Jain Dey
Instructor In-charge
BITS F225