Birla Institute of Technology & Science, Pilani
Hyderabad Campus

SECOND SEMESTER 2018-19

Course Handout Part II

Date: 07.01.2019

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	**: Dr. Bahurudeen A**
Instructors	**: Prof.Suman Kapur; Prof.N.Rajesh**

Scope of the course:

Recent advancement in educational system is a notable expansion to replace conventional methods with most sophisticated modern methods in all disciplines. However, development of any new practices and update on the currently practiced techniques in industry are mainly based on technical merit, innovation, cost effective and competitive compared to the available practices. As a result, educational methods and contents are updated to achieve industry ready technologist. Although more emphasis on technology, invention and scientific insight are given, large part of formal education pay less attention to environmental related issues. However, stakeholders of education have realized that this omission has led to implementation of irresponsible practices and the mismanagement of valuable limited natural resources. The scope of the course is to ignite a conversation, brainstorm, debate, share perspectives, ideas, suggestions, feasible methods on sustainable and environment friendly developments. Moreover, salient studies including multidisciplinary nature of environment relevant practices, biodiversity and its conservation, pollution, social impact are discussed in detail in this course.

Objective of the course:

The primary objective of the course is to learn interdisciplinary nature of environmental friendly practices and understand the importance of sustainable developments. Moreover, students will able to correlate social, biological and engineering aspects of ecofriendly expansion. 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. This course enables students to address engineering based sustainable solutions to such issues. The course aims to impart learning through project based learnings, activity oriented assignments, reviews on environmental regulations and acts, field based self/group activities.

Text book (TB):

1. Bharucha, E., 2013. Textbook for Environmental Studies for Undergraduate Courses. 2nd Ed. Universities Press.

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.
6. R.R. Barthwal, 2012. Environmental Impact Assesment, 2nd Edition. New Age International Publishers.

Course Plan:

Lecture No.	*Learning objectives*	*Topics to be covered*	*Chapter in the Text Book*	*Dept*
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	Civil Engineering
2-4	Environmetal Impact Assessment (EIA)	Acts pertaining to Environment; Issues involved in enforcement of environmental legislation of EIA.	1,2-R6	
5-8	Disaster management	Disaster management: floods, earthquake, cyclone and landslides.	5-T1	
9-14	Social issues and the environment	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	
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	Chemistry

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	
29-32	Concept of ecosystems and its features	Structure and function of ecosystems, , Energy and material flow in ecosystems, Food chains, webs and ecological pyramids, Introduction, Types, Characteristic features, Structure and functions of various ecosystems	3-T1, 1-R1, 2-R2	Biological Sciences
33-36	Human population and environment	Dynamics of natural populations (growth curves), population ecology, 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	
36-42	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	

Evaluation scheme:

Evaluation component	*Duration*	*%*	*Date and time*	*Nature of the Component**
Mid Semester Examination	1.5 Hr.	20	16/3, 3.30 - 5.00 PM	CB
Project	-	50	Continuous Evaluation	OB
Comprehensive Exam	2 Hr.	30	14/05 AN	OB

Chamber consultation hour: Thursday 5.00 p.m to 6.00 p.m

Grading policy

Award of grades will be guided in general by the histogram of marks.

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 permission of the Instructor-in-charge is necessary. Request for make-up should reach the Instructor-in-charge at the earliest. Make-up for assignments will not be given.

Notices

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

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.

Instructor In-charge

BITS F225