Birla Institute of Technology & Science, Pilani
Hyderabad Campus

FIRST SEMESTER 2020-21

Course Handout Part II

Date: 17.08.2020

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. Rajitha K**
Instructors	**: Prof.Suman Kapur; Prof.D. Ramaiah**

Scope and objective of the course:

The current scenario witnesses several kinds of environmental issues and alerts the world to equip with relevant measures to create a sustainable environment. The sustainable development through technological advances demands proper understanding of the current challenges, existing policies and role of expertise from various domains of science and technology. These factors drive the introduction of the current course in the curriculum, which targets to provide the environmental challenges on various facets of developments. The course was introduced based on the judgment of the Supreme Court of India 2003, which follows a core syllabus for a basic course on environment prescribed Universities Grants Commission. The primary focus of the course is to relate the social, biological, chemical and engineering aspects of the environment by an overall understanding of the fundamental concepts related to these domains. The course spans from fundamental concepts to advances in science and technology, which links to the current environmental developments through case studies. The course aims to provide comprehensive knowledge of the environment seeks the engagement of the students through a project by choosing their domain of interest related to the environment.

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.

Course Plan:

Lecture No.	***Learning objectives***	***Topics to be covered***	***Unit / Chapter***
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
2-5	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
6-9	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
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
29-31	Environmetal Impact Assessment (EIA)	Acts pertaining to Environment; Issues involved in enforcement of environmental legislation EIA.	
32-35	Disaster management	Disaster management: floods, earthquake, cyclone and landslides.	
36-43	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	6-T1,

		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	1-4R1

Evaluation scheme:

Component	Duration	Weightage (%)	Date & Time	Nature of Component
Test -1	30 min	15	September 10 – September 20 (During scheduled class hour)	OB
Test-2	30 min	15	October 09 –October 20 (During scheduled class hour)	OB
Test-3	30 min	15	November 10 – November 20 (During scheduled class hour)	OB
Project	---	30	Continuous	OB
Comprehensive	2 hours	25	TBA	OB

Chamber consultation hour

TBA

Notices: All notices/ announcements regarding this course shall be displayed in the Google classroom.

Make-up Policy: Make-up for all tests will be granted only **in genuine cases**.

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