BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
INSTRUCTION DIVISION
FIRST SEMESTER 2015-2016

Course Handout (Part II)

Date: 03/08/2015

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

Course No. **: CHE F411**
Course Title **: Environmental Pollution Control**
Instructor-in-Charge : **UTKARSH MAHESHWARI**

1. Course Description

Air, water & land pollution; sources and classification; sampling and analysis; control methods & equipment; modeling of different control techniques; advanced wastewater treatment processes; solid waste management, hazardous waste management; radioactive waste management; various case studies and recent research developments.

2. Scope and Objective

This course aims at providing students, the different control methods for air & water pollutants abatement, with modeling of different control technologies. This course will also include solid waste management, Life cycle & environmental impact assessment studies. Certain case studies based on current pollution problems will be undertaken & possible remedies will be studied. Projects related to air and water quality monitoring and analysis would be given.

3. Text Book

1. Davis, M. L. and D. A. Cornwell, "Introduction to Environmental Engineering", *McGraw Hill,* New York, 5th ed., 2013.

Reference Book

1. Rao, C. S., "Environmental Pollution Control Engineering", *New Age International (P) Ltd.,* New Delhi, 2nd Ed. (2008).

4. Course Plan

No. of Lectures	Learning Objectives	Topics to be covered	Text /Ref Book Chap.
1-3	To give an overview on environment and various types of pollutants.	The Biosphere; The Hydrological cycle; The Nutrient cycle; Pollution of Air, Water and Soil	Ch. 1 (T-1) Ch. 1 (R-1)
4-6	To know the different types of air pollutants, their sources & effects.	Air pollution: sources & effects	Ch. 9 (T-1) Ch. 2 (R-1)
7-9	To study the types of air pollutants sampling & measurement.	Air pollution sampling & measurement	Ch. 4 (R-1)
10-12	To study the meteorological conditions prevailing in the atmosphere, which affect the dispersion of pollutants emitted into the atmosphere.	Meteorological aspects of air pollutant dispersion	Ch. 9 (T-1) Ch. 3 (R-1)
13-19	To study different control methods for removal of particulates from air.	Air pollution control methods and equipment	Ch. 9 (T-1) Ch. 5 (R-1)
20-21	To know different control methods for gaseous pollutants	Control of oxides and hydrocarbon emissions,	Ch. 9 (T-1) Ch. 6 (R-1)
22-24	To know the different types of water pollutants & their effects.	Sources & classification of water pollutants	Ch. 7 (T-1 & R-1)
25-26	To study the different methods of analysis of water pollutants.	Wastewater sampling and analysis	Ch. 8 (R-1)
27-31	To study the primary, secondary & advanced waste water treatment methods.	Wastewater treatment	Ch. 8 (T-1) Ch. 9 (R-1)
32-33	To know the sources of solid wastes, their types, effects, methods of collection & methods of disposal.	Solid waste management	Ch. 11 (T-1) Ch. 10 (R-1)
34-35	To study hazardous waste management.	Hazardous waste management	Ch.12 (T-1) Ch. 11 (R-1)
36-37	Basics of radioactivity & radiation, effects of radiation and protection methods, types of radioactive wastes and management	Radioactive waste management	Ch. 14 (T-1)
38-39	Understanding of noise pollution & its impact on environment	Noise Pollution	Ch. 10 (T-1)
40-41	To study the environmental impact assessment & environmental audit.	EIA & Environmental Audit	Class notes will be provided

5. Evaluation Scheme

EC No.	Evaluation Component	Duration	Weightage % (200 Marks)	Date, Time & Venue	Nature of Component
1.	Midterm Test	90 min	30	6/10 2:00 - 3:30 PM	Closed Book
2.	Assignments/ Projects/ Class Participation	-	20	-	Take Home / Open Book
3.	Comprehensive Exam.	180 min	50	4/12 FN	Closed Book

Chamber Consultation Hour : To be announced in the class.

Notices : Notices concerning the course will be displayed on the Chemical Engineering Department Notice Board.

Instructor-in-Charge
CHE F411