BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
INSTRUCTION DIVISION
FIRST SEMESTER 2010-2011

Course Handout (Part II)

Date: 02/08/2016

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 : **AJAYA KUMAR PANI**

1. Course Description

Air & water pollutants; sampling and analysis; control methods for air & water pollutants; modeling of different control techniques; advanced wastewater treatment processes; solid waste management, noise pollution; hazardous waste management.

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, noise pollution & hazardous waste management studies. Besides this, under each subcategory, the various pollution regulating laws laid down by Government of India will be discussed briefly for awareness of the students.

3. Text Book

T1. Davis, M. L. and D. A. Cornwell, "Introduction to Environmental Engineering", *McGraw Hill,* New York, 5th ed., 2013.
T2. Rao, C.S., Environmental Pollution Control Engineering, New Age International 2nd Ed., 2006.

Reference Books

1. R1. Sincero A. P., Sincero G. A., Environmental Engineering: A Design Approach, PHI, 1996.
2. R2. Peavy, H.S., Rowe, D.R. and Technobanolous, G., "Environmental Engineering" McGraw Hill, 1985.
3. Research papers from different journals.

4. Course Plan

Lecture No.	Learning Objectives	Topics to be covered	Text Book Chap.
1 - 2	To know the different types of air pollutants, their sources & effects.	Air pollution: sources & effects	Ch. 9, T1
3 – 4	To study the types of air pollutants sampling & measurement.	Air pollution sampling & measurement	Ch. 4, T2
5 – 8	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, T1
9 –12	To study different control methods for removal of particulates from air.	Air pollution control methods and equipment	Ch. 9, T1
13 – 16	To know different control methods for gaseous pollutants	Adsorption, bio-filtration, combustion	Ch. 9, T1
16 –19	To know the different types of water pollutants & their effects.	Sources & classification of water pollutants	Ch. 7, T1
20-21	To study the different methods of analysis of water pollutants.	Wastewater sampling and analysis	Ch. 6 and Ch 8, T2
22 –24	To study the primary treatment methods for water and wastewater.	Wastewater treatment	Ch. 8, T1
25-28	To study the secondary treatment methods for water and wastewater, sludge treatment and disposal methods.	Wastewater treatment	Ch. 8, T1
29 -32	To study the different types of advanced wastewater treatment processes required to achieve the desired quality effluent.	Advanced wastewater treatment	Ch.6, T1
33 –34	To know the sources of solid wastes, their types, effects, methods of collection & methods of disposal.	Solid waste management	Ch. 11, T1
35 – 36	To study hazardous waste management.	Hazardous waste management	Ch.12, T1

37 – 38	To know the sources of noise pollution, its effects, measurement of noise & control techniques for noise pollution.	Noise pollution	Ch.10, T1
39 –40	Basics of radioactivity & radiation, effects of radiation and protection methods, types of radioactive wastes and management	Radioactive waste management	Ch. 14, T1
Self Study	Global warming, Climate Change; UN Climate change conference updates	Recent updates	Journal articles

5. Evaluation Scheme

EC No.	Evaluation Component	Duration	Weightage % (Marks)	Date, Time & Venue	Nature of Component
1.	Surprise Quizzes	During lecture hour	16		CB*
2.	Assignments		14		OB**
3.	Mid Semester Test	90 min	30	<TEST_1>	CB and/or OB
4.	Comprehensive Exam.	3 hr.	40	<TEST_C>	CB and/or OB

*CB: Close Book ** OB: Open Book

Chamber Consultation Hour : To be announced in the class.
Notices : Notices will be displayed on the Chemical Engineering Notice Board.

Instructor-in-Charge
CHE F411