Ahmedabad University

Course	CHE503 Pollution Control	Semester	Monsoon Semester 2024
Faculty Name(s)	Ramya Srinivasan	Contact	ramya.srinivasan@ahduni.edu.in
School	SEAS	Credits	3
GER Category:	Not Applicable	Teaching Pedagogy Enable:YES	P/NP Course: Can not be taken as P/NP

Schedule

Section 1	09:30 am to 11:00 am	Tue	01-08-24 to 26-11-24
	09:30 am to 11:00 am	Thu	01-08-24 to 26-11-24

Prerequisite	BIO104 Environmental Science
Antirequisite	Not Applicable
Corequisite	Not Applicable

Course Description	**Introduction:** Environment and environmental pollution **Air Pollution Control:** Air pollution system, Air pollutants, Need of APC, Air pollution by chemical process industry, Standards as per APC Acts and Rules, APC equipment- particulate and gaseous emissions **Water Pollution Control:** Constituents in wastewater, Need of WPC, Water pollution by chemical process industry, Standards as per WPC Acts and Rules, WP treatment processes and equipment **Solids Waste Treatment and Disposal:** Characteristics and sources of industrial wastes, Need of hazardous waste treatment and disposal, Industrial hazardous waste-related Rules, Industrial hazardous waste treatment and disposal methods **Pollution Prevention:** Waste audit, Reuse, recycle, recover, Cleaner production in chemical process industry, Wealth from waste, Good housekeeping, Maintenance
Course Objectives	• To develop interest among Chemical Engineers regarding environment and Its Protection • To provide basic understanding of environmental engineering so that the graduating Chemical engineers may meet the Industries Expectations in the area of pollution control and prevention to fulfill and comply the requirements of pollution control authority of the State and the Country. • To introduce principles and methods to control air, Water and Soil pollution to the UG students of Chemical Engineering
Learning Outcomes	• To develop interest among Chemical Engineers regarding environment and Its Protection • To provide basic understanding of environmental engineering so that the graduating Chemical engineers may meet the Industries Expectations in the area of pollution control and prevention to fulfill and comply the requirements of pollution control authority of the State and the Country. • To introduce principles and methods to control air, Water and Soil pollution to the UG students of Chemical Engineering
Pedagogy	Lectures and video and Project work
Expectation From Students	Should attend all classes, complete the assignment and project work

Assessment/Evaluation	• Mid-Semester Examination:
	  ◦ Online/Off line Mid semester Exam - 25%
	• End Semester Examination:
	  ◦ End Semester Examination - 30%
	• Other Components:
	  ◦ Plant visit Report/ Presentation - 15%
	  ◦ attendance - 10%
	  ◦ Assignments/Class Tests - 20%

Attendance Policy	As per Ahmedabad University Policy. As per university policy
Project / Assignment Details	Will be given during the session
Course Material	Other Course Material • **1. " Pollution Control in Process Industries", Mahajan. S.P.Tata-McGraw Hill, New Delhi, 2." Waste Water Treatment", Narayana Rao, M. and Datta, A.K., Oxford and IBH Publications, New Delhi,** 3. "Waste Water Engineering –Treatment and Reuse" Metcalf & Eddy , Mcgraw Hill , • **1. " Pollution Control in Process Industries", Mahajan. S.P.Tata-McGraw Hill, New Delhi, 2." Waste Water Treatment", Narayana Rao, M. and Datta, A.K., Oxford and IBH Publications, New Delhi,** 3. "Waste Water Engineering –Treatment and Reuse" Metcalf & Eddy , Mcgraw Hill ,
Additional Information	This course is offered to Undergraduate Chemical Engineering Students as an elective.

Session Plan

NO.	TOPIC TITLE	TOPIC & SUBTOPIC DETAILS	READINGS,CASES,ETC.	ACTIVITIES	IMPORTANT DATES
1	Introduction of pollution and control	Over view of Environment and environmental pollution	From the Text book \\\"2. Environmental Pollution Control Engineering By C.S. Rao	supported by the reference books mentioned in course Material\	
2	Air Pollution Control	Air pollutants		Lecture,Class test , and Assignment	
3		Air pollutants			
4		· Need of APC			
5		· Need of APC			
6		· APC Acts and Rules			
7		· APC equipment- particulate and gaseous emissions			
8		· APC equipment- particulate and gaseous emissions			
9		· APC equipment- particulate and gaseous emissions			
10		· APC equipment- particulate and gaseous emissions			
11		· APC equipment- particulate and gaseous emissions			
12		· Air pollution by chemical process industry			

13	Solids Waste Treatment and Disposal	· Characteristics and sources of industrial wastes			
14		· Characteristics and sources of industrial wastes			
15		· Need of hazardous waste treatment and disposal			
16		· Industrial hazardous waste-related Rules			
17		· Industrial hazardous waste treatment and disposal methods			
18		· Industrial hazardous waste treatment and disposal methods			
19		· Industrial hazardous waste treatment and disposal methods			
20		· Industrial hazardous waste treatment and disposal methods			
21		Reflection & Review			
22		Mid semester Examiination			
23	Water Pollution Control	Introduction, relevance and big picture	"Basic Environmental Technology - Water Supply, Waste Management and Pollution Control" - Author: Jerry A. Nathanson	Lecture,Class test , and Assignment	
24		· Water: The Universal Solvent; Quick review of Fundamental Chemistry	Other books and readings will be mentioned in class as and when required	Activities may be done at appropriate times during the course if time permits	

25		· Water Quality Parameters			
26		· Contaminents of Waste Water			
27		· Need for WPC and Standards as per WPC Acts and Rules			
28		· Water treatment: processes and equipment			
29		· Water treatment: processes and equipment			
30		· Water treatment: processes and equipment			
31		· Water treatment: processes and equipment			
32		· Wastewater treatment and disposal			
33		· Wastewater treatment and disposal			
34		· Wastewater treatment and disposal			
35		· Wastewater treatment and disposal		Lecture and Assignment	
36		· Water pollution by chemical process industry			
37	Pollution Prevention:	· Environmental audit			
38		· Reuse, recycle, recover			
39		· Cleaner production in chemical process industry			
40		· Cleaner production in chemical process industry			
41		· Wealth from waste		Lecture and Assignment	

42		· Wealth from waste			
43		Reflection & Review			
44		End semester Examination			
45		End semester Examination			