

Lesson Plan

B.Tech All courses - V-Semester 2015-16(Open Elective)

Course Code	15CE348E
Course Name	Water Pollution & its Management
Prerequisites	Nil
Category	P (Water Resources Engineering)

Instructional objectives

Instructional objectives no.	Instructional objectives
1	To know the basics, importance of Water Pollution
2	To study the various Effects of Water pollution
3	To learn the importance of methods of control of Water Pollution
4	To understand the various Water Pollution control Act

Student outcomes

Student outcome number	Student outcome
a	an ability to apply knowledge of mathematics, science, and engineering
c	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
e	an ability to identify, formulate, and solve engineering problems

Lecture No	Date	Topic	Instructional objectives	Student outcome	Reference
1,2		Sources & Characteristics Of Water Pollution-Water pollution-Sources & types of water pollution.	1	a, c	1
3,4		Physical, Chemical & Biological – Effect of waterpollution.	1	a, c	1
5,6		Drinking water quality standards- WHO & BIS standards	1	a, c	1
7,8		Waste Water treatment –Primary, secondary, tertiary treatment – effluent coming from STP	1	a, c	1
9		Water Act- 1974 (Prevention & Control)- salient features.	1	a, c	1
Cycle Test – I					
10,11		Water Quality & Standards	2	a, c	1
12,13		Quality of surface waters, Water quality in flowing waters,	2	a, c	1,2
14,15		Water quality in impounded waters.	2	a, c	1,3
16, 17		Groundwater quality, Water quality standard.	2	a, c	1,3
18, 19		Microbiological quality of drinking water. Chemical quality of drinking water.	2	a, c	1,3

Surprise Test					
20 ,21		Industrial Activity & Mitigation Measures- Role of water in different industries-Effluent discharge characteristics.	2,3	a, c	1,3
22, 23		-Discharge Standards for Rivers and Streams-Role of stakeholders, Public NGO's.	2, 3	a, c	1,3
24,25		Government in Protection of Water bodies-Control Measures.	2, 3	a, c	1,3
26 ,27		Mitigation Measures for Industrial Water Contamination due to industries.	2, 3	a, c, e	1,3
Cycle Test – II					
28, 29, 30		Water Pollution Regulations- Administrative regulation under recent legislations in water pollution control.	3, 4	a, c	1,3
31, 32		Water (Prevention & control of pollution) Act 1974 as amended by Amendment Act 1988.	3, 4	a, c	1,3
33, 34, 35		Water (Prevention & control of pollution) Rules 1975- Water (Prevention & control of pollution) Cess Act. 1977 as amended by Amendment Act 1991.	3, 4	a, c	1,3
36		Role Of Regulatory Boards- Sustainable Development.	3, 4	a, c, e	
37, 38		Rain Water Harvesting-Methods.	3, 4	a, c, e	
39, 40		Water Pollution-Causes and Effects-	3, 4	a, c	
41, 42		Role of Regulatory bodies and Local bodies-CPCB-TWAD Board – CMWSSB etc--Case Studies related to Effective Water Management.	3, 4	a, c, e	
		Revision & Model Examination			

Text Books & Reference books.

1. Fair.G.M, "Water and Waste water engineering Vol.I & II" .John Wiley and sons, Newyork. 2010.
2. Metcalf & Eddy, "Wastewater engineering, Treatment and Reuse", Tata MacGrawhill publications, 2008.
3. Eckenfelder, W.W., ""Industrial Water Pollution Control", McGraw-Hill, 2009.
4. Arceivala.S.J, "Wastewater Treatment for Pollution Control", Tata McGraw- Hill, 2008.
5. "Aruna Venkat Environmental Law and Policy", PHI learning private limited New Delhi, 2011.