



Department of Civil Engineering	LP: OE18408 Rev. No: 02
B.E/B.Tech/M.E/M.Tech : AUT/ADS/BIO/CHE/CSE/ECE/EEE/INT/MEC Regulation: 2018 PG Specialisation : N/A Sub. Code / Sub. Name : OE18408 / WATER POLLUTION AND ITS MANAGEMENT Unit : I - SOURCES & CHARACTERISTICS OF WATER POLLUTION	Date: 02/01/2024

**Unit Syllabus:** Water Pollution-Sources & types of water pollution –Physical, chemical & biological –Effect of water pollution. Drinking water quality standards waste Water treatment –Primary, secondary, tertiary-water pollution prevention & control act – 1974.

**Objective:** Enumerate the sources and characteristics of water pollution.

Session No *	Topics to be covered	Ref	Teaching Aids
1	Water pollution –Introduction	R1- Ch.1;Pg.5-7	PPT
2	Water pollution - Sources & types of water pollution	R1- Ch.1;Pg.5-7	PPT
3	Water pollution - Sources & types of water pollution	R1- Ch.1;Pg.5-7	PPT
4	Physical, chemical & biological characteristics of waste water	R1-Ch 15 :Pg 214-215	PPT
5	Physical, chemical & biological characteristics of waste water	R1-Ch 15 :Pg 214-215	PPT
6	Effect of water pollution. Drinking water quality standards and waste water treatment	R1- Ch.1;Pg. 8	PPT
7	Primary, secondary, tertiary treatments of waste water	R1-Ch 15 :Pg 222-230	PPT
8	Water pollution prevention & control act – 1974.	R2-Pg 1-30	PPT
9	Water pollution prevention & control act – 1974.	R2-Pg 1-30	PPT

**Content beyond syllabus covered (if any):**

Different laboratory tests to find the water quality



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Unit : II- WATER QUALITY AND STANDARDS

**Unit Syllabus :** Quality of surface waters, Water quality in flowing waters, Water quality in impounded waters, Groundwater quality, Water quality standard Microbiological quality of drinking water, and Chemical quality of drinking water.

**Objective:** To describe the water quality standards

Session No *	Topics to be covered	Ref	Teaching Aids
10	Quality of surface waters	R1- Ch.3;Pg. 31-33	PPT
11	Quality of surface waters	R1- Ch.3;Pg. 31-33	PPT
12	Water quality in flowing waters	R1- Ch.3;Pg. 28-31	PPT
13	Water quality in impounded waters,	R1- Ch.3;Pg. 28-31	PPT
14	Ground water quality	R1- Ch.3;Pg. 29	PPT
15	Ground water quality	R1- Ch.3;Pg. 29	PPT
	CAT – I		
16	Water quality standard Microbiological quality of drinking water	R1- Ch.3;Pg. 33-35	PPT
17	Chemical quality of drinking water.	R1- Ch.3;Pg. 35-37	PPT
18	Chemical quality of drinking water.	R1- Ch.3;Pg. 35-37	PPT

**Content beyond syllabus covered (if any):**

Water treatment plants in Chennai



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Unit : III - INDUSTRIAL ACTIVITY & MITIGATION MEASURES

**Unit Syllabus:** Role of water in different industries-Effluent discharge characteristics-Discharge Standards for Rivers and Streams-Role of stakeholders, Public NGOS, Government in Protection of Water bodies-Control Measures-Mitigation Measures for Industrial Water Contamination due to industries.

**Objective:** Summarise the industrial activity and mitigation measures

Session No *	Topics to be covered	Ref	Teaching Aids
19	Role of water in different industries	R3-Ch.1; Pg.39	PPT
20	Effluent discharge characteristics	R3-Ch.1; Pg.14	PPT
21	Discharge Standards for Rivers and Streams	R2-Ch.1; Pg.17	PPT
22	Role of stakeholders, Public NGOS in Protection of Water bodies	R5-Ch.1; Pg. 7	PPT
23	Role of stakeholders, Public NGOS in Protection of Water bodies	R5-Ch.1; Pg. 7	PPT
24	Government in Protection of Water bodies	R5-Ch.5; Pg. 65	PPT
25	Government in Protection of Water bodies	R5-Ch.1; Pg. 65	PPT
26	Mitigation measures for Industrial Water Contamination due to industries	R3-Ch.7; Pg.313-394	PPT
27	Mitigation measures for Industrial Water Contamination due to industries	R3-Ch.7; Pg.313-394	PPT

**Content beyond syllabus covered (if any):**

Effluent Standards of Sewage Treatment plants in India & its Recent Amendments given by National Green Tribunal, Ministry of Housing and Urban Affairs.



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Unit : IV – WATER POLLUTION REGULATIONS

**Unit Syllabus:** Administrative regulation under recent legislations in water pollution control. Water (Prevention & control of pollution) Act 1974 as amended by Amendment Act 1988. Water (Prevention & control of pollution) Rules 1975 Water (Prevention & control of pollution) Cess Act. 1977 as amended by Amendment Act 1991.

**Objective:** Summarise the water pollution regulations

Session No *	Topics to be covered	Ref	Teaching Aids
28	Administrative regulation under recent legislations in water pollution control	R2-Ch.1; Pg. 1-7& R6-Ch.1; Pg. 1-15	PPT
29	Administrative regulation under recent legislations in water pollution control	R2-Ch.1; Pg. 1-7& R6-Ch.1; Pg. 1-15	PPT
30	Water (Prevention & control of pollution) Act 1974 as amended by Amendment Act 1988	R2-Ch.1; Pg. 1-7	PPT
31	Water (Prevention & control of pollution) Act 1974 as amended by Amendment Act 1988	R2-Ch.1; Pg. 1-7	PPT
32	Water (Prevention & control of pollution) Act 1974 as amended by Amendment Act 1988	R2-Ch.1; Pg. 1-7	PPT
	CAT – II		
33	Water (Prevention & control of pollution) Rules 1975	R6-Ch.1; Pg. 1-15	PPT
34	Water (Prevention & control of pollution) Rules 1975	R6-Ch.1; Pg. 1-15	PPT
35	Water (Prevention & control of pollution) Cess Act. 1977 as amended by Amendment Act 1991	R7-Ch.1; Pg. 1-7	PPT
36	Water (Prevention & control of pollution) Cess Act. 1977 as amended by Amendment Act 1991	R6-Ch.1; Pg. 1-7	PPT

**Content beyond syllabus covered (if any):**



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Unit :V - ROLE OF REGULATORY BOARDS

**Unit Syllabus:** Sustainable Development, Rain Water Harvesting-Methods-Water Pollution-Causes and Effects-Role of Regulatory bodies and Local bodies-CPCB-TWAD Board – CMWSSB – Case studies related to Effective Water Management.

**Objective:** Describe the role of regulatory bodies

Session No *	Topics to be covered	Ref	Teaching Aids
37	Sustainable Development	R10-Pg.11.Pg.53-60	PPT
38	Rain Water Harvesting Methods	R8	PPT
39	Water Pollution-Causes and Effects	R1-Ch.1; Pg. 1-11	PPT
40	Water Pollution-Causes and Effects	R1-Ch.1; Pg. 1-11	PPT
41	Role of Regulatory bodies and Local bodies	R11& R13	PPT
42	CPCB-TWAD Board	R11& R12	PPT
43	CMWSSB	R13	PPT
44	Case studies related to Effective Water Management	R8-Ch.1; Pg. 313-326	PPT
45	Case studies related to Effective Water Management	R8-Ch.1; Pg. 371-384	PPT
	CAT III		

**Content beyond syllabus covered (if any):**



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**TEXTBOOKS:**

1. Fair.G.M, "Water and Waste water engineering Vol.I & II" .John Wiley and sons, New York. 2010.
2. P.C. Bansil, "Water Management In India,"Concept Publishing Company", New Delhi, 2004.
- 3.

**REFERENCES:**

1. Water Pollution Causes ,Effects and Control by P.K.Goel ,New Age International (P) limited Pubishers,2006
2. The Water (Prevention And Control Of Pollution) Cess Act, 1977 Central Pollution Control Board website (<https://cpcb.nic.in/water-pollution/>)
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. <https://cfpub.epa.gov/npstbx/files/stakeholderguide.pdf>
6. [https://cpcb.nic.in/uploads/GSR\\_58\\_\(E\)\\_1975.pdf](https://cpcb.nic.in/uploads/GSR_58_(E)_1975.pdf)
7. [http://164.100.47.4/billstexts/lstexts/asintroduced/143\\_1991\\_LS\\_Eng.pdf](http://164.100.47.4/billstexts/lstexts/asintroduced/143_1991_LS_Eng.pdf)
8. [https://www.who.int/water\\_sanitation\\_health/resourcesquality/wpcbegin.pdf](https://www.who.int/water_sanitation_health/resourcesquality/wpcbegin.pdf)
9. <https://www.twadboard.tn.gov.in/rain-water-harvesting-methods>
10. National Building code of India 2016 – Volume II
11. <https://cpcb.nic.in/water-pollution/>
12. <https://www.twadboard.tn.gov.in/policy-notes-documents>
13. <https://chennaietrowater.tn.gov.in/qualityassurance.html>

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