

SRM UNIVERSITY
FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF CIVIL ENGINEERING

LESSON PLAN

B.Tech Civil Engineering VI semester 2015-16 (Core Subject)

Course Code	CE1025
Course Name	WATER SUPPLY AND ENVIRONMENTAL ENGINEERING DESIGN
Prerequisites	NIL
Category	WATER RESOURCE ENGINEERING (P-PROFESSIONAL)

Instructional objectives

Instructional objectives no.	Instructional objectives
1	To know the basics, importance, and methods of water supply.
2	To study the various sources and properties of water.
3	To understand the various methods of conveyance of water.
4	To learn the objectives and methods of water treatment and to study the features and function of different water treatment units.
5	To learn the importance of rain water harvesting and water pollution

Student outcomes

Student outcome as per ABET	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
h	the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i	a recognition of the need for, and an ability to engage in life-long learning
J	a knowledge of contemporary issues

Section Lesson Plan

Lecture No	Topic	Instructional objectives	Student outcome	Reference
1-2	Introduction – Water supply – Environmental Engg. – role of Environmental Engineer – Water	1	a, c	1,3

	supply – development of public water supply			
3 -4	Need for protected water supplies- objectives of water supply systems – water supply scheme- quantity of water	1	a, c	1,3
5 - 6	Design period – per capita consumption- fluctuations in demand pattern – population forecast	1	a, c, e	1,3
7 -8	Arithmetical, Incremental, Geometric methods – problems	1	a, c, e	1,3
9 -10	Sources of water – surface and ground water sources	2	a, c	1,2
CYCLE TEST –I (One period)				
11,12	Quality of water- physical, chemical and biological aspects.	2	a, c	1,2
13,14	Analysis of water – water quality standards	2	a, c	1,2
15,16	Conveyance and distribution system – Intake structures – pipe materials – Hydraulics of flow in pipes	3	a, c	1,3
17,18	Laying, Jointing, testing of pipes – pumping stations – selection of pumps	3	a, c	1,3
19,20	Methods of distributing water- storage and distribution reservoirs – analysis of distribution system	3	a, c	1,3
21,22,23	Hardy-cross method of balancing- equivalent pipes	3	a, c, e	1,2
	SURPRISE TEST & CYCLE TEST –II	(one period)		
24,25	Definition of unit process and unit operations - objectives of water treatment - methods & sequence of treatment of water	4	a, c	1,3
26,27	typical flow sheet treating hard groundwater turbid surface water - aeration , coagulation, flocculation filtration and disinfection	4	a, c	1,3
28,29,30	principles functions of design - sedimentation - flocculationfilter units	4	a, c	1,3
31,32	miscellaneous methods -iron and manganese removal - deflouridation and demineralization.	4	a, c, e	1,3
33,34,35	Sustainable Development-Rain Water harvesting-Methods-Water Pollution	4	a, c	1,3
36,37,38	Causes and effects- Role of regulatory bodies&	4	a, c	1,3

	Local bodies-CPCB-TWAD Board			
39,40,41	CMWSSB etc-Water Act 1974-Case Studies related to Effective Water Management	5	a, c	1,3
REVISION & MODEL EXAM				

Text Books

1. Garg .S.K, "*Environmental Engineering*", Vol. I, Khannan Publishers, New Delhi, 2004
2. Duggal .K.N, "*Elements of Environmental Engineering*", S. Chand & Company Ltd., New Delhi, 2002.

Reference Books

1. Paneerselvam .R, "*Environmental Engineering*", Vol. I, SPGS Publishers Chennai – 88, 2006
2. "*Manual on Water Supply and Treatment*," CPHEEO, Ministry of Urban Development, Government of India, New Delhi, 2009.

Faculty handling:

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