

## Mohamed Sathak A.J college of Engineering, Chennai.

### DEPARTMENT OF CIVIL ENGINEERING

### LESSON PLAN

Course/Branch	:	B.E Civil Engineering	Total no. of hours given in syllabus:		
Subject Code	:	<b>CE8603</b>	Lecture	:	45
Subject Title	:	Irrigation Engineering	Tutorials	:	0
Year/Semester	:	II/III	Practical	:	0
Faculty Name	:	Mr. R.B. Rakesh	<b>TOTAL</b>	:	<b>45</b>
Regulation	:	2017	<b>Credits</b>	:	<b>03</b>

#### COURSE OBJECTIVES :

- The student is exposed to different phases in irrigation practices and Planning and management of irrigation. Further they will be imparted required knowledge on Irrigation storage and distribution canal system and Irrigation management.

#### COURSE OUTCOMES:

Students will be able to

- Have knowledge and skills on crop water requirements.
- Understand the methods and management of irrigation.
- Gain knowledge on types of Impounding structures
- Understand methods of irrigation including canal irrigation.
- Get knowledge on water management on optimization of water use.

Sl.No.	Topic	No. of Periods	Text / Reference Books	Page No.	Method
<b>UNIT I CROP WATER REQUIREMENT</b>					<b>9</b>
<b>Objective:</b> Have knowledge and skills on crop water requirements					
1	Need and classification of irrigation- historical development	1	T1	1, 225	Chalk and Board
2	merits and demerits of irrigation	1	T1	1 - 7	Chalk and Board
3	types of crops-	1	T1	219, 11, 24, 28 - 30	Chalk and Board
4	crop season-duty, delta and base period-	1	T1	225 - 230	Chalk and Board
5	consumptive use of crops-	2	T1	24	Chalk and Board
6	estimation of Evapotranspiration using experimental and theoretical methods	3	T1	73 - 81	Chalk and Board

UNIT II		IRRIGATION METHODS			9
<b>Objective:</b> Understand the methods and management of irrigation.					
1	Tank irrigation – Well irrigation	2	T1	239	Chalk and Board
2	Irrigation methods: Surface and Sub-Surface and Micro Irrigation	2	T1	34	Chalk and Board
3	– design of drip and sprinkler irrigation	2	T1	35	Chalk and Board
4	ridge and furrow irrigation	1	T1	27	Chalk and Board
5	Irrigation scheduling – Water distribution system- Irrigation efficiencies.	2	T1	79	Chalk and Board
UNIT III		DIVERSION AND IMPOUNDING STRUCTURES			9
<b>Objective:</b> <ul style="list-style-type: none"><li>The objective of this unit is to help students to Gain knowledge on types of Impounding structures</li></ul>					
1	Types of Impounding structures	1	T1	346-348	Chalk and Board
2	Gravity dam	2	T1	359, 399-404	Chalk and Board
3	Forces on a dam -Design of Gravity dams	2	T1	434-436 445-452	Chalk and Board
4	Earth dams	1	T1	566-567 568	Chalk and Board
5	Arch dams	1	T1	568	Chalk and Board
6	Diversion Head works - Weirs and Barrages-	2	T1		Chalk and Board
UNIT IV		CANAL IRRIGATION			9
<b>Objective:</b> Understand methods of irrigation including canal irrigation					
1	Canal regulations, canal alignment	1	T1	799	Chalk and Board
2	Canal drop	1	T1	802	Chalk and Board
3	Cross drainage works-	1	T1	843	Chalk and Board
4	Kennedy’s and Lacey’s Regime theory	2	T1	654,669	Chalk and Board
5	Design of unlined canal	2	T1	608	Chalk and Board
6	Canal outlets, direct sluice	1	T1	781	Chalk and Board
7	Design of prismatic canal	1	T1	789	Chalk and Board
UNIT V		WATER MANAGEMENT IN IRRIGATION			9

<b>Objective:</b>					
<ul style="list-style-type: none"> <li>Get knowledge on water management on optimization of water use.</li> </ul>					
1	Modernization techniques-Rehabilitation	1	Re	<a href="http://www.fao.org/tempref/agl/AGLW/Morini/07_IRRIGATION.pdf">http://www.fao.org/tempref/agl/AGLW/Morini/07_IRRIGATION.pdf</a>	Chalk and Board
2	Optimization of water use-Minimizing water losses	1	Re		Chalk and Board
3	On farm development works-Participatory irrigation management-	1	Re		Chalk and Board
4	Water resources associations	1	Re		Chalk and Board
5	Changing paradigms in water management-	2	Re		Chalk and Board
6	Performance evaluation-Economic aspects of irrigation	3	Re		Chalk and Board

### **Assignment / Case Studies / Tutorials /Quiz / Mini Projects / Model Development / Task**

1. Assignment on contour surveying.

### **TEXT BOOK**

1. Dilip Kumar Majumdar, "Irrigation Water Management", Prentice-Hall of India, New Delhi, 2008.
2. Punmia B.C., et. al; Irrigation and water power Engineering, Laxmi Publications, 16th Edition, New Delhi, 2009
3. Garg S. K., "Irrigation Engineering and Hydraulic structures", Khanna Publishers, 23rd Revised Edition, New Delhi, 2009

### **REFERENCES:**

1. Duggal, K.N. and Soni, J.P., "Elements of Water Resources Engineering", New Age International Publishers, 2005
2. Linsley R.K. and Franzini J.B, "Water Resources Engineering", McGraw-Hill Inc, 2000
3. Chaturvedi M.C., "Water Resources Systems Planning and Management", Tata McGraw-Hill Inc., New Delhi, 1997.

**PREPARED BY,**

**Mr. R.B. Rakesh**  
(AP/CIVIL)

**APPROVED BY,**

**Mr. M.B. SHANMUHARAJAN**  
(HOD/CIVIL)