

**SARDAR RAJA COLLEGE OF ENGINEERING,
ALANGULAM**

DEPARTMENT OF CIVIL ENGINEERING



SUBJECT NAME : IRRIGATION ENGG

SUBJECT CODE : CE2301

YEAR/SEM : III / V

STAFF IN-CHARGE

HOD

PRINCIPAL

SYLLABUS

CE2301

IRRIGATION ENGINEERING

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OBJECTIVE

At the end of the semester, the student shall understand the need and mode of irrigation. The student also shall know the irrigation management practices of the past, present and future. The structures involved the elementary hydraulic design of different structures and the concepts of maintenance shall also form part. Finally, the student shall be in a position to conceive and plan any type of irrigation project

UNIT I INTRODUCTION 9

Irrigation-Need and mode of irrigation - Merits and demerits of irrigation – Crop and crop seasons – consumptive use of water – Duty – Factors affecting duty – Irrigation efficiencies – Planning and Development of irrigation projects.

UNIT II IRRIGATION METHODS 8

Canal irrigation – Lift irrigation – Tank irrigation – Flooding methods – Merits and demerits – Sprinkler irrigation – Drip irrigation

UNIT III DIVERSION AND IMPOUNDING STRUCTURES 10

Weirs – elementary profile of a weir – weirs on pervious foundations - Types of impounding structures - Percolation ponds – Tanks, Sluices and Weirs – Gravity dams – Earth dams – Arch dams – Spillways – Factors affecting location and type of dams – Forces on a dam – Hydraulic design of dams.

UNIT IV CANAL IRRIGATION 10

Alignment of canals – Classification of canals – Canal drops – Hydraulic design of drops – Cross drainage works – Hydraulic design of cross drainage works – Canal Head works – Canal regulators – River Training works.

UNIT V IRRIGATION WATER MANAGEMENT 8

Need for optimisation of water use – Minimising irrigation water losses – On farm development works - Participatory irrigation management – Water users associations – Changing paradigms in water management – Performance evaluation.

TOTAL: 45 PERIODS

TEXT BOOKS:

1. Asawa, G.L., “Irrigation Engineering”, New Age International Publishers, 2000
2. Punima B.C. & Pande B.B .Lal Irrigation and Water Power Engineering, Laxmi Publishing, New Delhi 2007
3. Michael, A.M, Irrigation Theory and Practical, Vikas Publishing Pvt Ltd, 2006
4. Gupta, B.L, & Amir Gupta, “Irrigation Engineering”, Satya Prahesan, New Delhi

REFERENCES :

1. Dilip Kumar Majumdar, “Irrigation Water Management (Principles & Practices)”, Prentice Hall of India (P), Ltd, 2000
2. Basak, N.N, “Irrigation Engineering”, Tata McGraw-Hill Publishing Co. New Delhi, 1999
3. Sharma R.K.. “Irrigation Engineering”, S.Chand & Co. 2007.

SUBJECT DESCRIPTION AND OBJECTIVES

At the end of the semester, the student shall understand the need and mode of irrigation. The student also shall know the irrigation management practices of the past, present and future. The structures involved elementary hydraulic design of different structures and the concepts of maintenance shall also form part. Finally, the student shall be in a position to conceive and plan any type of irrigation project.

From this subject shall understand the Characteristics of irrigation works in the past and present, irrigation project components, basic soil-water-plant relationships, irrigation water relationships, irrigation water requirements, irrigation efficiencies, methods of water delivery, methods of water application, water measuring devices, introduction to irrigation project planning

This subject deals with

- Irrigation Terminologies
- Irrigation methods
- Impounding structures
- Diversion structures
- Water management schemes

MICRO LESSON PLAN

Week	Hrs	Lecture Topics	Book		
UNIT I INTRODUCTION					
I	1	Irrigation – Need and mode of irrigation	Refer Book 2		
	2	Merits and demerits of irrigation			
	3	Crop (AV Class)			
	4	Crop seasons			
	5	Consumptive use of water			
II	6	Duty			
	7	Factors affecting duty			
	8	Irrigation efficiencies			
	9	Planning and Development of irrigation projects			
UNIT II IRRIGATION METHODS					
III	10	Canal irrigation	Refer Book 2		
	11	Lift irrigation			
	12	Tank irrigation			
	13	Flooding methods (AV Class)			
IV	14	Merits of irrigation			
	15	Demerits of irrigation			
	16	Sprinkler irrigation			
	17	Drip irrigation			
UNIT III DIVERSION AND IMPOUNDING STRUCTURES					
V	18	Weirs – elementary profile of a weir	Refer Book 2		
	19	Weirs on pervious foundations			
	20	Types of impounding structures			
	21	Percolation ponds (AV Class)			
VI	22	Tanks, Sluices and Weirs	Refer Book 2		
	23	Gravity dams – Earth dams			
	24	Arch dams – Spillways			
	25	Factors affecting location and type of dams			
	26	Forces on a dam			
VII	27	Hydraulic design of dams	Refer Book 2		
	UNIT IV CANAL IRRIGATION				
	28	Alignment of canals			
	29	Classification of canals			
	30	Canal drops			
VIII	31	Hydraulic design of drops	Refer Book 2		
	32	Cross drainage works			
	33-34	Hydraulic design of cross drainage works			
	35	Canal Head works			

VIII	36	Canal Regulators	
	37	River Training work	
IX	UNIT V IRRIGATION WATER MANAGEMENT		
	38	Need for optimization of water use	Refer Book 2
	39	Minimising irrigation water losses	
	40	On farm development works	
	41	Participatory irrigation management	
42	Water users associations		
X	43	Changing paradigms in water management	
	44	Performance evaluation	
	45	Water management (AV Class)	

Prepared By
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