SRI VIDYA COLLEGE OF ENGINEERING & TECHNOLOGY

COURSE PLAN (THEORY)

ACADEMIC YEAR: 2018-2019(Odd)

Subject Code	CE6703		L	P	T	C
Subject Title	Water Resources and Irrigation Engineering		3	0	0	3
Year / Dept / Sem	IV / CIVIL / VII	Regulation Year	2013			
Faculty Name / Desg / Dept	Ms. B. Krishna Priya M.E., / Assistant Professor / CIVIL					
Course Prerequisite	1. The students must have details about Water resources. 2. The students must have general knowledge about irrigation.					

SYLLABUS

CE6703 WATER RESOURCES AND IRRIGATION ENGINEERING **L T P C**

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UNIT I WATER RESOURCES **9**

Water resources survey – Water resources of India and Tamilnadu – Description of water resources planning – Estimation of water requirements for irrigation and drinking- Single and multipurpose reservoir – Multi objective - Fixation of Storage capacity -Strategies for reservoir operation - Design flood-levees and flood walls.

UNIT II WATER RESOURCE MANAGEMENT **9**

Economics of water resources planning; – National Water Policy – Consumptive and non-consumptive water use - Water quality – Scope and aims of master plan - Concept of basin as a unit for development - Water budget- Conjunctive use of surface and ground water

UNIT III IRRIGATION ENGINEERING **9**

Need – Merits and Demerits – Duty, Delta and Base period – Irrigation efficiencies – Crops and Seasons - Crop water Requirement – Estimation of Consumptive use of water.

UNIT IV CANAL IRRIGATION **9**

Types of Impounding structures: Gravity dam – Diversion Head works - Canal drop – Cross drainage works – Canal regulations – Canal outlets – Canal lining - Kennady"s and Lacey"s Regime theory

UNIT V	IRRIGATION METHODS AND MANAGEMENT	9

Lift irrigation – Tank irrigation – Well irrigation – Irrigation methods: Surface and Sub-Surface and Micro Irrigation - Merits and demerits – Irrigation scheduling – Water distribution – Participatory irrigation management with a case study

TOTAL: 45 PERIODS

TEXT BOOKS:

1. Linsley R.K. and Franzini J.B, "Water Resources Engineering", McGraw-Hill Inc, 2000.
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. Chaturvedi M.C., "Water Resources Systems Planning and Management", Tata McGraw- Hill Inc., New Delhi, 1997.
3. Michael A.M., Irrigation Theory and Practice, 2nd Edition, Vikas Publishing House Pvt. Ltd., Noida, Up, 2008
4. Dilip Kumar Majumdar, "Irrigation Water Management", Prentice-Hall of India, New Delhi, 2008.
5. Asawa, G.L., "Irrigation Engineering", New Age International Publishers, New Delhi, 2000.

Course Objectives (CO)	CO1: The student is exposed to different phases in Water Resources Management and National Water Policy CO2: Further they will be imparted required knowledge on Reservoir, Planning, management and economic analysis including Irrigation and Irrigation management practices
Expected Course Outcomes (ECO)	At the end of the course, the students should be able to: ECO1. The student will be able to perform analysis and design of various Irrigation systems including hydraulic structures. ECO2. The students will be able to carry out design of water resources projects independently. ECO3. The students will have knowledge and skills on planning, design, operation and management of reservoir system.

	ECO4. The students will have knowledge on different methods of Irrigation including canal irrigation. ECO5. The students will be able to understand cost- benefit considerations in water resources project planning. ECO6. The students will be able to know about investigation required in water resources project planning, formulation and its evaluation.

Mapping of CO & PO(Specify the PO's) - *(Fill the col.s with the legend given below)*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	3	3	1	-	-	1	-	-	-	-	-
CO2	-	-	3	1	-	-	2	-	-	-	1	-
CO3	3	-	2	1	-	-	1	-	-	-	-	-
CO4	2	-	-	1	-	1	2	-	-	-	-	-
CO5	-	-	2	-	-	-	1	-	-	-	2	2
CO6	-	-	-	1	-	-	1	-	-	-	2	2

Bridging the Curriculum Gap (Additional Topics beyond syllabus/Seminars/Assignments)	BCG1: Water Resources Management BCG2: Irrigation management practices BCG3: Irrigation and water power Engineering
Related Website URLs	W1: *http://nptel.ac.in/courses/105106118/9* W2: *www library.ctr.utexas.edu/ctr-publications/0-5831-3.pdf* W3: www.e-periodica.ch/cntmng?pid=bse-cr-001:1968:8::203
Related Video Course Materials (min. 3 no.s)	*V1: https://youtu.be/UzuVARqd5DI* *V2: https://www.youtube.com/watch?v=pJwrXLWhISE* *V3: https://www.youtube.com/watch?v=HLnV-fdf9k*

S.No	Topic Name	Book – P. No	Teaching Aids	No of hrs	Cumulative hrs
	UNIT I WATER RESOURCES				
1.	Introduction	-	Brain storming	1	1
2.	Water resources survey – Water resources of India and Tamilnadu	Own notes	Class room teaching	1	2
3.	Description of water resources planning	Own notes	Class room teaching	1	3
4.	Estimation of water requirements for irrigation and drinking	Own notes	Class room teaching	1	4
5.	Single and multipurpose reservoir – Multi objective	Own notes	Class room teaching	1	5
6.	Fixation of Storage capacity -	Own	Class room	1	7

	Strategies for reservoir operation	notes	teaching		
7.	Design flood-levees and flood walls	Own notes	Class room teaching	2	9
	UNIT II WATER RESOURCE MANAGEMENT				
1.	Introduction and Economics of water resources planning	Own notes	Class room teaching	1	10
2.	National Water Policy	Own notes	Seminar	1	11
3.	Consumptive and non-consumptive water use	Own notes	Class room teaching	2	13
4.	Water quality	Own notes	Class room teaching	1	14
5.	Scope and aims of master plan	Own notes	Class room teaching	1	15
6.	Concept of basin as a unit for development	Own notes	Class room teaching	1	16
7.	Water budget	Own notes	Class room teaching	1	17
8.	Conjunctive use of surface and ground water	Own notes	Class room teaching	1	18
	UNIT III IRRIGATION ENGINEERING				
1.	Introduction	-	Class room teaching	1	19
2.	Need – Merits and Demerits of irrigation engineering	T2.3	Class room teaching	2	21
3.	Duty, Delta and Base period	T2.58	Class room teaching	2	23
4.	Irrigation efficiencies	T2.79	Seminar	1	24
5.	Crops and Seasons	T2.85	Class room teaching	1	25
6.	Crop water Requirement	T2.86	Class room teaching	1	26
7.	Estimation of Consumptive use of water	T2.70	Class room teaching	1	27
	UNIT IV CANAL IRRIGATION				
1.	Introduction	-	Class room teaching	1	28
2.	Types of Impounding structures: Gravity dam	T2.359	Class room teaching	1	29
3.	Diversion Head works	T2.567	Class room teaching	1	30
4.	Canal drop	T2.750	Class room teaching	1	31
5.	Cross drainage works	T2.843	Class room teaching	1	32
6.	Canal regulations	T2.799	Class room teaching	1	33
7.	Kennady"s and Lacey"s Regime theory	T2.654	Class room teaching	1	34
8.	Canal lining	T2.757	Class room	1	35

			teaching		
9.	Canal outlets	T2.781	Class room teaching		36
	UNIT V IRRIGATION METHODS AND MANAGEMENT				
1.	Lift irrigation	T2.9	Class room teaching	1	37
2.	Tank irrigation	T2.10	Class room teaching	1	38
3.	Well irrigation	T2.239	Class room teaching	1	39
4.	Irrigation methods: Surface and Sub-Surface and Micro Irrigation	T2.15	Class room teaching	2	41
5.	Merits and demerits	T2.15	Class room teaching	1	42
6.	Irrigation scheduling	Own notes	Class room teaching	1	43
7.	Water distribution	T2.566	Class room teaching	1	44
8.	Participatory irrigation management with a case study		Seminars	1	45

	Prepared by	*Approved by*
Signature	B. Krishna	25/6/18
Name	Ms. B. KRISHNA PRIYA	Prof. P. SURESH KUMAR
Designation	Assistant Professor / CIVIL	HOD /CIVIL
Signed date	25-06-2018	25.06.18

LEGEND:

METHODOLOGY TO MAP OBJECTIVE WITH OUTCOME

Course outcomes are achieved through

a. Suitable Analogies.
b. Class room teaching.
c. Assignments.
d. Tutorials
e. Weekly, monthly and model exams.
f. Brain storming.
g. Group discussion and role play.
h. Seminars

[Endorsed]
(Prof)