



SWARNANDHRA

COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada Seetharampuram, W.G. DT, Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF CIVIL ENGINEERING

TEACHING PLAN

Course Code	Course Title	Semester	Branches	Contact Periods /Week	Academic Year	Date of commencement of Semester
16CE7T01	WATER RESOURCES ENGINEERING-II	VII	CIVIL	5	2021-22	04-10-2021

COURSE OUTCOMES

Students are able to

1	Plan layout of diversion head works. [K3]
2	Identify site selection for reservoir and dam. [K3]
3	Explain different forces acting on gravity dams. [K2]
4	Carryout stability analysis of Earth Dams. [K3]
5	Apply design principles of ogee spillways and energy dissipation below spillways. [K3]
6	Use design principles of canal structures like falls, regulators etc. [K3]

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
I. DIVERSION HEAD WORKS						
1	Plan layout of diversion head works. [K3]	1.1	Types of diversion head works, weirs and barrages	T1	01	Chalk & Board, PPT
		1.2	layout of diversion head works, components	T1	01	
		1.3	causes and failures of weirs on permeable foundations	T1	01	
		1.4	Bligh's creep theory	T1	01	
		1.5	Problems on Creep Theory	T1	01	
		1.6	Khosla's theory	T1	01	
		1.7	Problems on Khosla's theory	T1	01	
		1.8	Design of impervious floors for subsurface flow, exit gradient.	R2	02	
		1.9	Problems on design of impervious floors	T3	01	
Content Beyond Syllabus			Graphical solution of khosla's curves	T1	01	
					Total	11
II. RESERVOIR PLANNING, DAMS						
2	Identify site selection for reservoir and dam. [K3]	2.1	Reservoir Planning: Investigations	T1	01	Chalk & Board, PPT, video
		2.2	Reservoir site selection	T1	01	
		2.3	zones of storage	T3	01	
		2.4	yield and storage capacity of reservoir	T1	01	
		2.5	Reservoir sedimentation.	T1	02	
		2.6	Dams: Types of dams	T1	01	
		2.7	selection of type of dam	T1	01	
		2.8	selection of site for a dam	T1	01	
Content Beyond Syllabus			Water logging: Effects-Causes -Measures	T1	01	



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				Total	10	
III. GRAVITY DAMS						
3	Explain different forces acting on gravity dams. [K2]	3.1	Gravity dams: Forces acting on a gravity dam	T1	02	Chalk & Board, PPT, video
		3.2	causes of failure of a gravity dam	T1	01	
		3.3	Elementary profile and practical profile of a gravity dam	T3	02	
		3.4	limiting height of a dam	T3	01	
		3.5	Stability analysis	R1	02	
		3.6	Drainage galleries	T3	01	
		3.7	grouting	T3	01	
				Total	10	
IV. EARTH DAMS						
4	Carryout stability analysis of Earth Dams. [K3]	4.1	Earth Dams: Types	T1	01	Chalk & Board, PPT, video
		4.2	causes of failure	T2	01	
		4.3	criteria for safe design	T1	02	
		4.4	Seepage, measures for control of seepage-filters	T1	02	
		4.5	Stability analysis	R3	01	
		4.6	stability of downstream slope during steady seepage	T1	02	
		4.7	upstream slope during sudden drawdown conditions.	T1	02	
				Total	11	
V. SPILLWAYS						
5	Apply design principles of ogee spillways and energy dissipation below spillways. [K3]	5.1	Spillways: Types	T1	01	Chalk & Board, PPT, video
		5.2	design principles of Ogee spillways		01	
		5.3	Types of spillways crest gates.	T3	02	
		5.4	Energy dissipation below spillways	R1	01	
		5.5	stilling basins	T1	02	
		5.6	Basin appurtenances.	T2	01	
				Total	08	
VI. Canal Structures						
6	Use design principles of canal structures like falls, regulators etc. [K3]	6.1	Falls: Types and their location	T2	01	Chalk & Board, PPT, video
		6.2	Design principles of Straight glacis fall	T2	01	
		6.3	Regulators: Head Regulators design Principles	T2	01	
		6.4	Cross Regulators design Principles	T2	01	
		6.5	Canal outlets- types	R2	01	
		6.6	proportionality, sensitivity, flexibility.	T2	01	
		6.7	Cross Drainage Works- Types, selection	T3	01	
		6.8	Design principles of aqueduct	T3	02	
Content Beyond Syllabus		Salt Problems in irrigated soils- Reclamation of salt affected Land		T1	01	
				Total	10	
CUMULATIVE PROPOSED PERIODS					60	



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Text Books:

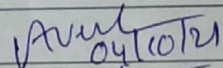
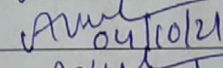
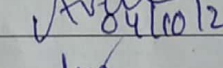

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Punmia B C, P.B.B Lal, A.K. Jain and A.K. Jain, Irrigation and Water Power Engineering, 16 th Edition, Laxmi Publications Pvt. Ltd., New Delhi, 2016.
2	Santosh Kumar Garg, Water Resources Engineering Vol. II Irrigation Engineering & Hydraulic Structures, 4 th Edition, Khanna Publishers, 2017
3	Modi P N, Irrigation Water Resources and Water Power Engineering, 9 th Edition, Standard Book House, New Delhi, 2014.

Reference Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	N N BASAK, Irrigation Engineering, 1 st Edition, McGraw Hill Education, 2017.
2	Dr. S.K. Sharma, Irrigation Engineering and Hydraulic Structures', 1 st Edition, S.Chand & Co Publishers, New Delhi, 2017.
3	Satyanarayana Murthy Challa, Water Resources Engineering' 2 ND Edition, New Age International Publishers, 2008.

Web Details

1	https://nptel.ac.in/courses/105/105/105105110/
2	https://nptel.ac.in/content/storage2/courses/105105110/pdf/m4106.pdf

	Name	Signature with Date
i. Faculty	A. Venkata Krishna	 04/10/21
ii. Course Coordinator	A. Venkata Krishna	 04/10/21
iii. Module Coordinator	A. Venkata Krishna	 04/10/21
iv. Programme Coordinator	G.V.L.N.Murthy	 10/10/21


Principal