

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING & TECHNOLOGY									
Programme	Bachelor of Technology				Branch/Spec.	Civil Engineering			
Semester	VII				Version	2.0.0.0			
Effective from Academic Year	2016-17				Effective for the batch Admitted in	2014-15			
Subject code	2CI704		Subject Name		<b>IRRIGATION ENGINEERING.</b>				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3		0		3	Theory	40	60	100
Hours	3		0		3	Practical	00	00	50
Pre-requisites:									
Learning Outcome:									
After Completion of the curriculum of fluid mechanics and hydrology, this subject envisages understanding of water storage, conveyance, and distribution & application f water for the irrigation purpose. Students will know about the dam structure, Diversion structure, canal & Canal structure. This application of water for the irrigation, optimum usage and management of irrigation will be tangent.									
Theory syllabus									
Unit	Content							Hrs	
1	<b>General:</b> Introduction, definition, necessity of irrigation, scope and benefits, ill effects of irrigation, irrigation development in India.							2	
2	<b>Methods of Irrigation:</b> Introduction, bandhara and lift irrigation, well and lifting devices, irrigation rates, riparian rights, principles of assessing water rates.							2	
3	<b>Irrigation Water:</b> Soil, crops and water requirements of crops. Duty and delta. Assessment of irrigation water. Methods of applying water to crops, water logging problems, causes and remedial measures.							4	
4	<b>Diversion Works:</b> Introduction, types of diversion head work, causes of failure, Bligh's , Lane's and Khosla's theories, design of glacis weir, design of vertical weir, silt control devices, Appurtenances – fish ladder, divide wall, under & scouring sluices, canal head regulator.							6	
5	<b>Earthen Dams:</b> Types of earthen dams, details, causes of failure of earth dam, seepage line, flow net, stability analysis of slopes, seepage control, safety against piping, slope protections,							9	

	design considerations in earthquake region, measures of safe drainage.	
6	<p><b>Gravity Dams:</b></p> <p>Introduction, forces acting on dam, load combination for design, various stresses at any horizontal plane, middle third rule, failures of dam, stability requirements, elementary and practical profiles of dam, openings in dam, foundation treatment, spillway, capacity of spillway, components, types, factors affecting design, design criteria, energy dissipation on d/s side of spillway, stilling basins, bucket type dissipaters, spillway gates.</p>	9
7	<p><b>Canals :</b></p> <p>Alignment and types of canals, design consideration, Lacey's &amp; Kennedy's theories, canal lining, canal losses and maintenance, canal regulators, falls, escapes, outlet, constructional features, CD works, Aqueducts, super passages, syphon, level crossing with principles of hydraulic design.</p>	7
<b>Practical content</b>		
NIL		
<b>Text Books</b>		
1	Irrigation and Hydraulic Structures - S.K.Garg	
2	Irrigation & Water Power Engineering - Dr. B.C.Punmia&B.B.Pande	
<b>Reference Books</b>		
1	Irrigation, Water Resources & Water Power Engineering - Dr. P.N.Modi	
2	Irrigation, Water Power & Water Resources Engineering - Dr. K.R.Arora	