

Course Number and Name												
BCE603 - IRRIGATION ENGINEERING												
Credits and Contact Hours												
3 & 45												
Course Coordinator's Name												
Mr.S.Rajesh												
Text Books and References												
TEXT BOOKS:												
1. Sharma R.K, "Irrigation Engineering and Hydraulic Structures", Oxford and IBII Publishing Company, New Delhi, 2002.												
2. Sathyanarayanan Murthy, "Irrigation Design and Drawing", Published by Mrs.L.Banumathi, Tuni, East Godavari District. A.P. 1998.												
REFERENCES:												
1. Michael A.M,"Irrigation – Theory and practice", Vikas Publishing House, 2000.												
2. Hand Book on irrigation system operation Practices, Water Management and training Project Technical Report No.33. CWC, 1990.												
3. Hand Book for improving Irrigation System Maintenance Practices, Water Management and Training Report No.19A, CWC, Delhi, 1989.												
Course Description												
<ul style="list-style-type: none"> To expose the student to different phases in Water Resources Management and National Water Policy. Further they will be imparted required knowledge on Reservoir planning, management and economic analysis including Irrigation and Irrigation management practices 												
Prerequisites						Co-requisites						
Fluid Mechanics						NIL						
required, elective, or selected elective (as per Table 5-1)												
Course Outcomes (COs)												
CO1	Estimate water requirements for irrigation and drinking											
CO2	Estimate consumptive use of water for irrigation											
CO3	Perform water resources and prepare water budget											
CO4	Prepare irrigation scheduling and water distribution for various crops.											
CO5	Design cross drainage works											
Student Outcomes (SOs) from Criterion 3 covered by this Course												
COs/SOs	a	b	c	d	e	f	g	h	i	j	k	
CO1	M			H								
CO2	M			H								
CO3	M			H								
CO4	M		H	H								

	CO5	M			H								
List of Topics Covered													
UNIT I IRRIGATION AS A SCIENCE											9		
<p>Definition, Need, Benefit, Historical Development, Scope in the country and the state - Sources for irrigation, wells, springs, rivers, streams, tanks, reservoirs - Flow and Lift irrigation. Methods of flow irrigation - Devices and equipments for lift irrigation - Duty, different concepts of duty and factors affecting duty.</p>													
UNIT II CROP WATER REQUIREMENTS											9		
<p>Soil – plant – water relationship – Evapo transpiration – consumptive use - Perennial, Annual and Seasonal crops - Principal irrigated, dry and wet irrigated crops - Assessment of crop water requirements - Effective rainfall - Net irrigation requirements for principal crops -Irrigational quality - Salt resistant crops - Water logging, remedial measures.</p>													
UNIT III CONVEYANCE AND DISTRIBUTION OF IRRIGATION WATER											9		
<p>Head works – Diversion and storage structures -Canals unlined and lined. Canal alignments -contour ridge, Branch canals, minors, water course and notches - Control structures - drops, escapes, shutters and operating devices, division boxes - Cross drainage structures- under tunnels, aqueducts, siphons, siphon aqueducts - Cross masonry structures - road and railway bridges.</p>													
UNIT IV IRRIGATION WATER MANAGEMENT											9		
<p>Need for optimization of water use - Management and productivity - Minimizing irrigation water losses - Operational rules for regulation - physical structures for management on farm development works - Participatory Irrigation Management (PIM) - Water Users Associations (WUA) - Training the water users.</p>													
UNIT V DESIGN OF IRRIGATION STRUCTURES											9		
<p>Sluices and surplus weirs in tanks - Earth dam section, homogenous and zoned. Anicuts and weirs on solid and permeable foundation - Head regulators, canal drops, canal siphons and aqueducts, under tunnels - Simple design of masonry and earth dams- Designing channels- Computer aided designs.</p>													