GUJARAT TECHNOLOGICAL UNIVERSITY
B.E. SEMESTER : VIII
CIVIL ENGINEERING

Subject Name: **IRRIGATION WATER MANAGEMENT**

Sr. No.	Course Contents	Total Hrs
1.	Indian water resources scenario and water management issues related to irrigated agriculture, Introduction to use of remote sensing and GIS technologies in study of irrigated areas. Land grading and field layout-Criteria for land levelling- Layout of fields and irrigation and drainage systems. Design aspects in border strip method, check basin method and furrow irrigation.	**10**
2.	Sprinkler irrigation:-Types of sprinkler irrigation systems-rotating head system and perforated system-Components of sprinkler system-Moisture distribution patterns and uniformity of coverage, Hydraulic design of sprinkler system- design problem, Operation and Maintenance of sprinkler systems. Drip irrigation method-components of drip irrigation system-principles of design of drip irrigation-design problem. Problems associated with drip irrigation systems, Application of fertilizers and chemicals through pressurized irrigation systems (both sprinkler and drip).	**14**
3.	Irrigation efficiencies –project irrigation efficiency, Scheduling of irrigation-time of irrigation –critical stages of water needs of crops-criteria of scheduling irrigation-frequency and interval of irrigation depth. Irrigation water quality-surface water and groundwater quality of irrigation water- irrigation with saline water-improving quality of water –leaching requirements.	**12**
4.	Water management in high watertable areas- causes of water logging, Classification of drainages, Prevention of high water table, Canal irrigation management-operation and management of canal irrigation, performance evaluation of a canal irrigation system. Community participation in irrigation water management, water users organization, merits and demerits of water users organization, Case Studies	**12**

Note: Each module carries equal weightage
Termwork: Tutorial problems based on above mentioned syllabus

Text Books:

1. D.K. Majumdar, Irrigation Water Management Principles and Practice, PHI
2. A.M. Michael, Irrigation –Theory and Practice, Vikas Publication, New Delhi
3. G.L. Asawa, Irrigation Engineering, Wiley Eastern Ltd.

Reference Books/Report:

1. O.W. Israelsen and V.E. Hansen, Irrigation Principles and Practice, John-Wiley and Sons, New York
2. S. Thiruvengadachari, R. Sakthivadivel, Satellite remote sensing for assessment of irrigation system performance: a case study in India By, Research Report, International Irrigation Management Institute Colombo, Sri Lanka
3. B.D. Dhawan Studies in Irrigation and Water Management, Common Wealth Publishers, New Delhi