

# GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Semester: III

Civil Engineering (Water Resources Management)

Subject Name: **Water Use Management**

Sr. No	Course content
1.	Soil surveys and irrigability classification, water quality, Irrigation water standards, Soil-water-plant relationship, Crop planning and crop patterns, Determination of consumptive use of crops, Irrigation efficiency, Irrigation scheduling, Methods of crop improvement, Soil and fertility management, Irrigation water application methods-surface methods, Simulation of flow in surface irrigation systems, Performance evaluation, Sensitivity analysis, parameter estimation, sprinkler and drip irrigation, Drainage of water-logged areas, Surface and subsurface drainage systems, Conjunctive use of surface water and groundwater, Saline and alkaline soils, Plants response to saline soils, Salt-tolerant crops, Reclamation and management of salt-affected soils, Measurement of irrigation water, Water Quality modelling, Desalination of irrigation water, Remote Sensing.
2.	Automation and control and regulation of canals, Operation and management of irrigation projects, Command area development organisation and their role in water management, Modernization of existing irrigation projects.

## **List of Tutorial:**

1. Water use management
2. Classify the methods of irrigation
3. Explain soil water relationship in detail
4. How will you determine consumptive use of water
5. Write short note: (a) Irrigation scheduling (b) Soil fertility management  
(c) Sprinkler irrigation (d) Drip irrigation (e) Conjunctive use of surface water and ground water (f) How the salt affected soil can be reclaimed
6. Discuss command area development

## **Reference Books:**

1. Irrigation-Theory and practice - A.M.Michael
2. Modern irrigated soils - D.W.James, R.J.Hanks & Jurinak
3. Crop water requirements FAO publications No. 24
4. Arid Land Irrigation in Developing countries, Environmental problems & effects Pergamon press Oxford University 1977
5. Sprinkler Irrigation – Melvyn Kay
6. Drip Irrigation – S. K. Sharma
7. Surface Irrigation Systems – Walker & Skogerboe
8. Drainage Manual