

CE 430: IRRIGATION ENGINEERING (3-0-0: 3)

Introduction

Definition and aim of irrigation, Necessity, Benefits and ill effects of irrigation, Types of irrigation.

Water Application Methods

Definition, Surface and subsurface irrigations, Free flooding, Border flooding, Check flooding, Basin flooding, Furrow irrigation method, Sprinkler irrigation method, Drip irrigation method, Advantages and disadvantages of various types.

Water Requirement of Crops

Crop period, Base period, Duty, Delta, Relationship between duty and delta, Irrigation requirements, Irrigation efficiencies, Soil-moisture-irrigation relationship, Depth and frequency of irrigations.

Lift Irrigation

Definition, Types, Sources, Advantages and disadvantages, Comparison of well irrigation with canal irrigation.

Canal Irrigation System

Introduction, Alluvial and non-alluvial canal, Alignment of canals, Curves in canals, Design capacity of an irrigation canal, Canal losses, Canal linings, Advantage of linings, Different types of linings.

Canal Headworks

Definition, Types of different headworks, Layout and components of storage and diversion head works, Weir and barrage, Head regulator, Silt excluder.

Regulation Works

Canal falls: Necessity, Location and various types.

Water Logging

Causes of water logging, Ill effects and preventive measure of water loggings, Surface and sub surface drains.

Text Books:

1. G. L. Asawa, "Irrigation and Water Resources Engineering", New Age Internationals.
2. S. K. Garg, "Irrigation Engineering and Hydraulic Structures", Khanna Publishers.

References:

1. N. N. Basak, "Irrigation Engineering", McGraw Hill Education.
2. M. M. Das and M. D. Saikia, "Irrigation and Water Power Engineering", PHI Learning.