

## IRRIGATION WATER DISTRIBUTION SYSTEMS (ELECTIVE-II)

**Course Code: 15CE2117**

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<b>3</b>	<b>0</b>	<b>3</b>

**Course Outcomes:** At the end of the course, the student will be able to:

**CO1:** Outline the irrigation system and develop method of distribution

**CO2:** Discuss about the channels and various head works

**CO3:** Design erodible and non erodible channels, proportional dividers and bed dams.

**CO4:** Operate and maintenance of closed conduit water distribution system

**CO5:** Measure the flow with different devices.

**UNIT-I** (10-Lectures)

**INTRODUCTION:** Irrigation development in India–types of irrigation systems – method of distribution – RWS, Warabandi, Shejpati and localization.

**UNIT-II** (10-Lectures)

**DISTRIBUTION WORKS:** Types of Head works–Classification of Channels – Regulations - Drops Canal escapes – Sluices – Sand vent – Tail dams – Syphons.

**UNIT-III** (10-Lectures)

**CANAL:** Design of erodible–non-erodible channels–diversion box–outlet – proportional dividers – bed dam.

**UNIT-IV** (10-Lectures)

**BLOCK / CHAK DESIGN:** Command ability–realignment of block – operation and maintenance.

**CLOSED CONDUIT DISTRIBUTION:** Drip–Sprinkler–Underground pipe design – Layout – Evaluation – Operation and Maintenance.

**UNIT-V**

(10-Lectures)

**FLOW MEASUREMENTS:** Flow measuring structures–Flumes Weirs – Orifices – Dilution Techniques –Channel transitions – Canal losses – Measurement of losses.

**TEXT BOOKS**

1. Varshney R.S., Gupta S.C. and Gupta R.L., “Theory and Design of Irrigation Structures”, 2nd edition, Nemchand & Brothers, Roorkee, 1992.
2. Sharma R.K., “Irrigation Engineering and Hydraulic Structures”, 1st edition, Oxford and IBH Publishing Co., New Delhi, 1984.
3. S.K Garg, “Irrigation engineering and hydraulic structures”, 24th Edition, Khanna Publishers, 2012.

**REFERENCES**

1. Ellis H.W., “*College of Engineering Irrigation Manual*”, Govt. of Tamil Nadu, 1973.
2. Richard H. Cuneca, “*Irrigation Systems Design (An Engineering Approach)*”, 1<sup>st</sup> Edition, Prentice Hall Inc., 1989.
3. Michael A.M., “*Irrigation Theory and Practice*”, 2<sup>nd</sup> edition, Vikas Publishing House Pvt. Ltd., 1995.