

CE8612 IRRIGATION AND ENVIRONMENTAL ENGINEERING DRAWING

DETAILED SYLLABUS

OBJECTIVE:

- At the end of the semester, the student shall conceive, design and draw the irrigation and environmental engineering structures in detail showing the plan, elevation and Sections.

PART A: IRRIGATION ENGINEERING

1. TANK COMPONENTS

Fundamentals of design - Tank surplus weir – Tank sluice with tower head - Drawings showing foundation details, plan and elevation

2. IMPOUNDING STRUCTURES

Design principles - Earth dam – Profile of Gravity Dam

3. CROSS DRAINAGE WORKS

General design principles - Aqueducts – Syphon aqueduct (Type III) – Canal drop (Notch Type) – Drawing showing plan, elevation and foundation details.

4. CANAL REGULATION STRUCTURES

General Principles - Direct Sluice - Canal regulator - Drawing showing detailed plan, elevation and foundation details.

PART B: ENVIRONMENTAL ENGINEERING

1. WATER SUPPLY AND TREATMENT

Design and Drawing of flash mixer, flocculator, clarifier – Rapid sand filter – Service reservoirs – Pumping station – House service connection for water supply and drainage.

4. SEWAGE TREATMENT & DISPOSAL

Design and Drawing of screen chamber - Grit channel - Primary clarifier - Activated sludge process – Aeration tank – Trickling filter – Sludge digester – Sludge drying beds – Septic tanks and disposal arrangements.

TEXTBOOKS:

1. Satya Narayana Murthy Challa, “Water Resources Engineering: Principles and Practice”, New Age International Publishers, New Delhi, 2002.
2. Garg, S.K., “Irrigation Engineering and Design of Structures”, New Age International Publishers, New Delhi, 1997.
3. Manual on Water Supply and Treatment, CPHEEO, Government of India, New Delhi, 1999.

4. Manual on “Sewerage and Sewage Treatment Systems- Part A, B and C” CPHEEO, Ministry of Urban Development, Government of India, New Delhi, 2013.

REFERENCES:

1. Mohanakrishnan. A, “A few Novel and Interesting Innovative Irrigation Structures: Conceived, Designed and Executed in the Plan Projects in Tamil Nadu”, Publ. No. 44 and Water Resources Development & Management Publ.No.43, IMTI Thuvakudy, Trichy, 2011.
2. Raghunath, H.M. “Irrigation Engineering”, Wiley India Pvt. Ltd., New Delhi, 2011.
3. Sharma R.K., “Irrigation Engineering and Hydraulic Structures”, Oxford and IBH Publishing Co., New Delhi, 2002.
4. Peary, H.S., ROWE, D.R., Tchobanoglous, G., “Environmental Engineering”, McGraw- Hill Book Co., New Delhi, 1995.
5. Metcalf and Eddy, “Wastewater Engineering, Treatment and Reuse”, Tata McGraw-Hill, New Delhi, 2010.
6. Qasim, S.R., Motley, E.M and Zhu. G. "Water works Engineering – Planning, Design and Operation", Prentice Hall, New Delhi, 2009.
7. Qasim, S. R. "Wastewater Treatment Plants, Planning, Design & Operation", CRC Press, New York, 2010