



**Kadi Sarva Vishwavidyalaya's
LDRP Institute of Technology & Research
Gandhinagar-382 015**



**M.E. Civil (Infrastructure Engineering), Semester: II
Subject Name: Water Supply and Drainage Subject Name: MECV205-B**

A. Learning objectives: The objective of this course is

- To study and analyze the design criteria of overall water supply and sewer system.
- To study and analyze the wells and reservoir and service storage for the water supply system.
- To prepare layout of the storm drains system.
- To design and layout of the pump station.

B. Teaching scheme (credits and hours):

Teaching scheme				Total Credit	Evaluation Scheme					Total Marks
L	T	P	Total		Theory		Mid Sem Exam	CIA	Pract/ Tut.	
Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	
03	00	00	03	03	03	70	30	20	00	120

C. Detailed Syllabus:

1. **Introduction:** Planning of water supply scheme, feasibility study
2. **Surface Water Collection & Distribution:** Intake, radial collector well, storage sump and service reservoirs, pumps and its selection
3. **Flow Analysis:** Measurement of flow, Appurtenances, Losses in pipes, Analysis of pipe network, introduction to pipe networking analysis software
4. **Storm Drainage:** Prediction of flood for urban storm drainage, Rational method, Hydraulics of flow in open channel, Hydraulic design of storm sewer.

D. Lesson Planning:

Unit No	Topics	Hours	Weightage
1	Introduction	03	7%
2	Surface Water Collection & Distribution	10	21%
3	Flow Analysis	16	36%
4	Storm Drainage	16	36%
	Total	45	100



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E. Instructional Method and Pedagogy (Continuous Internal Assessment (CIA) Scheme):

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lecture may be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lectures and practical which carries marks.
- At regular intervals assignments will be given. Students should submit all assignments during given period.
- Classroom participation and involvement in solving the problems in Tutorial rooms
Carries Marks
- Internal exam of 30 marks will be conducted as a part of Mid semester evaluation.
- The course includes a practical, where students have an opportunity to build an appreciation for the concept being taught in lectures.

F. Students Learning Outcomes:

At the end of the course the student will,

- Understand the hydraulics of pressure pipe flow and open channel gravity flow.
Determine the optimum storage capacity for the water supply system.
- Selection of the proper piping material for the water distribution system.
- Design the capacity of the elevated storage reservoir requirement.
- Perform general arrangement of a pump station with multiple pumps and its selection on the.
number of pumps required for the system design.
- Perform the water network analysis to ensure the flow rate and pressure requirement are met.

G. Recommended Study Materials

Reference Books:

1. Manual of Water Supply and Treatment, CPHEEO, Ministry of Urban Development, New Delhi.
2. Hydro system Engineering and Management, Mays, L.W. and Tung, Y.K., McGraw Hill New York.
3. Applied Hydrology, Chow, V.T, Maidment, D.R. and Mays, L.W., McGraw Hill.
4. Computer Assisted Floodplain Hydrology and Hydraulics, Hoggan, D.H., McGraw hill New York.
5. Water Supply Engineering, S.K.Garg, Khanna Publishers.