

Kadi Sarva Vishwavidyalaya, Gandhinagar
M.E. (Civil Infrastructure Engineering) Semester: II
(w.e.f. Academic Year 2017-18)

Subject Name: Design of water and waste water system

Subject code: MECV206-N-A

A. Learning objectives:

- To have an overall knowledge of the design of water and waste water treatments..
- To understand the water supply.
- To understand the waste water.

B. Teaching Scheme (Credits and Hours)

Teaching Scheme				Credit Scheme			Evaluation Scheme				
Lect (Hrs)	Tu (Hrs)	Prac. (Hrs)	Total (Hrs)	Theory	Pra/TW	Total	UE	IE	CIA	Prac/Viva	Total
04	02	00	06	04	01	05	70	30	20	30	150

C. Detailed Syllabus

Module I : Water system

1. **Characteristic of water:** Physical, chemical biological characteristics of water, quality control
2. **Water treatment process:** physical, chemical, biological treatment process
3. **Water distribution system:** types of distribution system, layout

Module II : Waste water system

1. **Characteristic of waste water: constituents, Physical, chemical biological characteristics of waste water**
2. **Water & waste water supply system:** necessity and management of water supply scheme, overview of water sources, location & layout of water treatment plant, distribution system, necessity of waste water treatment plant and site selection of ETP, disposal site
3. **Method of disposal:** types of various methods of disposal
4. **Unit operation of waste water treatment:** physical(screens, grit chamber, aeration tank), chemical (clariflocculator,), biological (filters, trickling filter, ASP) waste water treatment process

D. Lesson Planning

Sr. No.	Topics	Hours	Weightage(%)
1	Characteristic of water	5	8
2	Water treatment process	12	20
3	Water distribution system	5	8
4	Characteristic of waste water	8	14
5	Water & waste water supply system	10	17
6	Method of disposal	5	8
7	Unit operation of waste water treatment	15	25
Total		60	100

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E. Tutorial

- Tutorial based on water treatment process
- Design of water treatment plant
- Tutorial based on waste water treatment process
- Design of waste water treatment plant
- Design of water distribution system

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

- Attendance is compulsory in lectures which carries 05 Marks.
- At regular intervals assignments is given to all students which carries 10 marks. Evaluation of these assignments will be observed under Daily Homework Daily Assessment (DHDA) System.
- One internal exam of 30 marks is conducted as a part of internal theory evaluation.

G. Students Learning Outcomes:

- At the end of the course
- Able to understand the types and suitability of treatment process
- The importance and working of different treatment in plant
- Understand the Problems and related solution in operating the different methods

H. Recommended Study Materials

Text Books:

- Water supply by S.K.Garg by Khann publication vol.I
- Waste Water supply by S.K.Garg by Khann publication vol.II
- Water supply by B.C.PUNAMIA by laxmi publication vol.I
- Waste Water supply by S B.C.PUNAMIA by laxmi publication vol.II
- Waste Water supply by MC Grawhills publication by Mtcalf & Eddy