**Name of the Faculty :** Anisha Mor/ Suman Yadav

Discipline : Civil Engg.

Semester : 4th Sem.

Subject : Water Supply and Waste Water Engg. Lesson Plan Duration : 15 weeks

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| **Week** | **Theory** | | **Practical** | |
| **Lecture**  **Day** | **Topic (including assignment / test)** | **Practical**  **Day** | **Topic** |
| 1. | 1. | Necessity and brief description of planned water supply system.  Sources of water – surface/sub-surface sources (only description) | 1. | To determine Turbidity of water sample |
| 2. | Water requirement, Per capita demand, Factors affecting per capita demand |
| 2. | 1. | Rate of demand and variation in rate of demand | 2. | To determine Dissolved oxygen of water sample |
| 2. | Design Period, Factors governing the design period, Design period values for different  components of a water supply scheme |
| 3. | 1. | Population forecasting methods (with Numerical Problems) | 3. | To determine pH value of water sample |
| 2. | Physical, Chemical and bacteriological tests and their significance |
| 4. | 1. | Standard of potable water as per Indian Standard, water meter | 4. | To perform Jar test for coagulation |
| 2. | **Assignment-1** |
| 5. | 1. | **Class Test/Quiz** | 5. | To determine BOD of given sample |
| 2. | **Sessional Test-1** |
| 6. | 1. | **Water Treatment-** Sedimentation Purpose, Types of sedimentation tanks | 6. | To determine Residual chlorine in water |
| 2. | Coagulation / Flocculation - usual coagulation and their feeding |
| 7. | 1. | Filtration - Slow and Rapid sand filters, their significance and suitability | 7. | To determine Conductivity of water  and total |

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|  | 2. | Necessity of disinfection of water, forms of chlorination, break point chlorine, residual  Chlorine, application of chlorine. |  | dissolved solids |
| 8. | 1. | Miscellaneous Treatments – Aeration, Aqua guard, Reverse Osmosis System | 8. | To study the installation of following:  a) Water meter  b) Connection of water supply of building with main  c) Pipe valves and bends  d) Water supply and sanitary fittings |
| 2. | **Water Distribution System**-Requirement of a good water distribution system, Layout of distribution networks |
| 9. | 1. | Methods of distribution | 9. | To Study of installation of various fittings in water supply |
| 2. | Distribution reservoirs – their functions and types, Storage capacity of distribution reservoirs, Stand Pipes |
| 10. | 1. | **Assignment-2/Class Test** | 10. | To Study and demonstrate Jointing of various pipes |
| 2. | **Sessional Test-2** |
| 11. | 1. | **Waste Water Disposal-** Sanitation – Purpose and necessity of sanitation, Components of sewerage system - Manhole | 11. | 1.To demonstrate Laying of SW pipes for sewers  2.To study the installation and working of water cooler available in Institution |
| 2. | Types of sewage and types of sewerage system |
| 12. | 1. | Physical, chemical and bacteriological parameters of sewage | 12. | To study the installation and working of Reverse Osmosis System available in Institution |
| 2. | Sewage disposal methods - Disposal by dilution and land treatment, Self-purification of stream, Nuisance due to disposal |
| 13. | 1. | **Sewage Treatment** - Primary and secondary treatment | 13. | 1.To study the working of Rain Water Harvesting System  2.To demonstrate the drainage of roof top rain water of Institutional building |
| 2. | Screens, Grit chambers, Skimming tanks, Plain sedimentation tanks |
| 14. | 1. | Filtration, Trickling filter,Sludge treatment and disposal | 14. | Visit to a sewage treatment plant |
| 2. | Oxidation Ponds |
| 15. | 1. | **Assignment- 3/ Class Test** | 15. | 1.Prepare a report of a field visit to sewage treatment plant  2. Undertake a field visit to water treatment plant and prepare a report. |
| 2. | **Sessional Test- 3** |