

OJT Report

- Date: 11/12/2025

We visited the OJT (On Job Training) Centre at X-metric Water testing lab. is located at Shiye MIDC. First, we were shown the lab by ma'am, Then they told us about the rules, OJT timing & what work is done in the lab. They explained how water testing is carried out, which instruments & machines are used, & which chemicals are required, they also told us about the precautions to be taken during testing. After, that they showed us the water testing process & explained which tests are performed in water samples.

- Date: 12/12/2025

On the second day, we performed some water tests. These are included: COD [Chemical Oxygen Demand], TDS [Total Dissolved Solid].

1) COD

This is method used to measure the amount of oxygen required to oxidized wastewater or oxidized substance present in water. In this test, $K_2Cr_2O_7$ is used an oxidizing agent, then H_2SO_4 , FAS [Ferrous ammonium sulphate] & Ag_2SO_4 as a catalyst used. During the test, the sample is taken & $K_2Cr_2O_7$, H_2SO_4 & Ag_2SO_4 are added & then mixture is heated at about $150^\circ C$ for 2 hrs. After that, titration is performed the colour changes from yellow-green to reddish brown at the end point then calculate are done to find the COD value.

$$\text{Formula: } COD = \frac{[A-B] \times M \times 8000}{\text{ml. of sample.}}$$

Here, A =

B =

2) TDS

This method measures the amount of organic & inorganic dissolved substance in water, it is a fast process that measure oxygen consumption for oxidation. A water sample taken & placed in platinum-catalyzed combustion chamber at about 900°C to 1000°C . At high temperature, substance convert CO_2 , H_2O , N_2 .

$$\text{Formula: } \text{TDS} = \frac{[B-A] \times 1000 \times 10\text{ml}}{\text{ml. of sample}}$$

• Date : 13/12/2025.

On Next day, we performed another test. the pH meter & Alkalinity test.

1) pH meter

Switch the pH meter, calibrate using standard buffer solution. Rinse electrode with distilled water, dip the electrode in test sample solution & Record the pH.

2) Alkalinity test

100 ml of sample in 250 ml conical flask, 2-3 drops of phenolphthalein indicator, if sample turns pink, it is titrated with a standard acid solⁿ until the pink colour just disappears, including indicating the end point for phenolphthalein alkalinity. next, 2-3 drops of methyl orange indicator are added to the same flask & titration continues until the color changes from yellow to faint pink or orange. The total volume of acid used from the beginning of the titration until the methyl orange end point is used to calculate the total Alkalinity of the sample.

• Date: 14/12/2025

Then, on 4th day, the samples that come to the lab were tested at that time. Tests such as chloride test, calcium test.

1) Calcium test

50 ml of sample with 20 ml NaOH & 100-200 mg of murexide indicator, titrate against 0.01 M EDTA, then the End point colour is pink to purple.

2) Chloride test

50 ml of sample with 2 ml of $K_2Cr_2O_7$ it titrate against 0.02 N $AgNO_3$ & the end point colour is Red tinge [persistent]

• Date: 16/12/2025

On Fifth day, we performed the oil & grease tests were the remaining sample.

1) Oil & Grease.

The procedure begins by collecting a representative 1 lt. wastewater sample in a wide-mouth glass container, which must be prepared by adding 1:1 hydrochloric acid or sulfuric acid to reduce the pH 2 or lower, allowing for long-term storage or immediate analysis.

$$\text{Oil \& grease [mg/L]} = \frac{\text{Weight of Residue (mg)}}{\text{Volume of sample (L)}}$$

• Date: 17/12/2025

On sixth day, we performed turbidity testing & the sample treatment process.

1. Turbidity test →

The turbidity meter is calibrate according to manufacture instruction, collect a representative sample cell 3 times with the sample water. Fill the vial with the sample up to the mark, wipe the outside of the vial with a lint-free cloth or silicone oil. Remove - fingerprint, dirt or moisture. Insert the vial into the meter, aligning the marker. Close the lid & press to obtain the NTU value.

2. Sample treatment

Take the wastewater sample be treated check the pH of the water sample. Adjust the pH of the sample to around pH 11-12 by adding lime. After adjusting the pH, add polymer then allow it to settle. After settling clear water will separate & a layer will form at the bottom called it the clear treated water carefully in a sample separate container. Use this treated water for further analysis such as TS, TDS, COD, etc.

After that the Date 18, 19 we used to test the water sample that come daily. Every day conducted different tests. We gain a new experience & got to see many new laboratory process & techniques.

DATE: __/__/__

• Date: 20/12/2025:

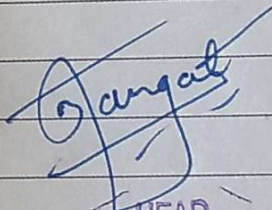
Sir explained everything clearly, we filled the form & completed our 10 days OTT.

During those days, we learned many new techniques, practical things & on 20/12/2025 our OTT was completed.

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Examiner
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