

Date: 07.03.2026

DEPARTMENT OF CIVIL ENGINEERING

A Report on “Industrial Visit to Sewage Treatment Plant”

A field trip was organized by the Department of Civil Engineering on 07/03/2026 to the Sewage Treatment Plant, Nagole, Hyderabad. All the II & III Year Civil Engineering students were taken to Sewage Treatment Plant (STP), accompanied by Mr. Mood Naresh assistant professor, civil engineering department.

The visit provided practical insights about large-scale wastewater management processes. The plant is being developed by the Hyderabad Metropolitan Water Supply and Sewerage Board (HMWS&SB) as part of a massive 1,297 crore project to STPs with a total capacity of 320 Million Liters per Day (MLD). Currently generating 320 MLD of sewage daily, Hyderabad aims to become the first city in South Asia to achieve 100% sewage treatment upon completion of these projects.

The Nagole STP, constructed on a 15-acre site, includes a pump house, primary treatment unit, SBR basins, and a chlorine contact tank. The Nagole STP is part of a consortium of five STPs along the Musi River with a total project value of ₹1,297 crore. The plant utilizes advanced Sequential Batch Reactor (SBR) technology.

OBJECTIVES OF THE VISIT

- To understand the scale of modern sewage treatment infrastructure.
- To observe primary treatment processes including Screen Chamber, Grit Chamber, and Chlorination.
- To learn about advanced Sequencing Batch Reactor (SBR) technology being implemented.

DETAILED PROCESS OBSERVATIONS

Screen Chamber: The treatment process begins at the Screen Chamber, where raw sewage first enters the plant. Here, a series of mechanical screens remove large solid objects such as plastics, rags, sticks, and other debris from the wastewater. These trapped materials are automatically raked and disposed of separately. This initial filtration is crucial as it protects downstream equipment including pumps, valves, and pipes from clogging and potential damage, ensuring uninterrupted plant operation.

Grit Chamber: After screening, the sewage flows into the Grit Chamber, designed to remove heavier inorganic particles like sand, gravel, cinders, and eggshells. By carefully controlling the flow velocity within the chamber, heavier grit particles settle to the bottom through gravity while lighter organic matter remains suspended and continues for further treatment. The collected grit is periodically removed, preventing abrasion and sedimentation issues in subsequent treatment stages and pipelines.

Chlorination Process: Following biological treatment, the water undergoes disinfection through chlorination—the final stage before discharge or reuse. Chlorine is added in carefully controlled doses within a dedicated contact tank, where it mixes thoroughly with the treated water. Sufficient contact time is provided to eliminate pathogenic microorganisms, including harmful bacteria and viruses. This critical step ensures the final effluent released into the environment is microbiologically safe, protecting public health and aquatic ecosystems.

Sequencing Batch Reactor Technology :The Nagole STP utilizes advanced Sequencing Batch Reactor (SBR) technology, a modern treatment method that performs all biological treatment steps within a single tank through timed cycles: filling, reacting (aeration), settling, decanting, and idle. Unlike conventional systems requiring multiple tanks, SBR technology offers greater efficiency, requires less space, and produces consistently high-quality treated water. The industrial visit to Nagole STP was highly educational, bridging theoretical knowledge with practical application. Witnessing operations from initial screening to final disinfection provided a profound appreciation for the complexity of urban water management. The plant represents a landmark achievement in India's wastewater infrastructure, demonstrating how advanced engineering and technology can address critical environmental challenges, paving the way for a cleaner, more sustainable Hyderabad.

The students also spent their time observing the waste water management systems and understanding related processes. All the details were noted by the students. They captured important sustainable practices during the visit. The students actively experienced these practical treatment techniques in Sewage Treatment Plant between 10.00am to 3:00 PM.



During the industrial visit, the Sewerage Treatment Plant Manager, Mr. Naveen Kumar, along with Civil Engineering faculty member Mr. Mood Naresh and the students, actively participated in the program.

Mr. Mood Naresh
Faculty in-charge

Dr. G. Subba Rao
HoD-CE

