



**University of
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SEWAGE TREATMENT PLANT (STP)
UNIVERSITY OF TECHNOLOGY

**Sewage Treatment
Plant (STP)
at
University of Technology**



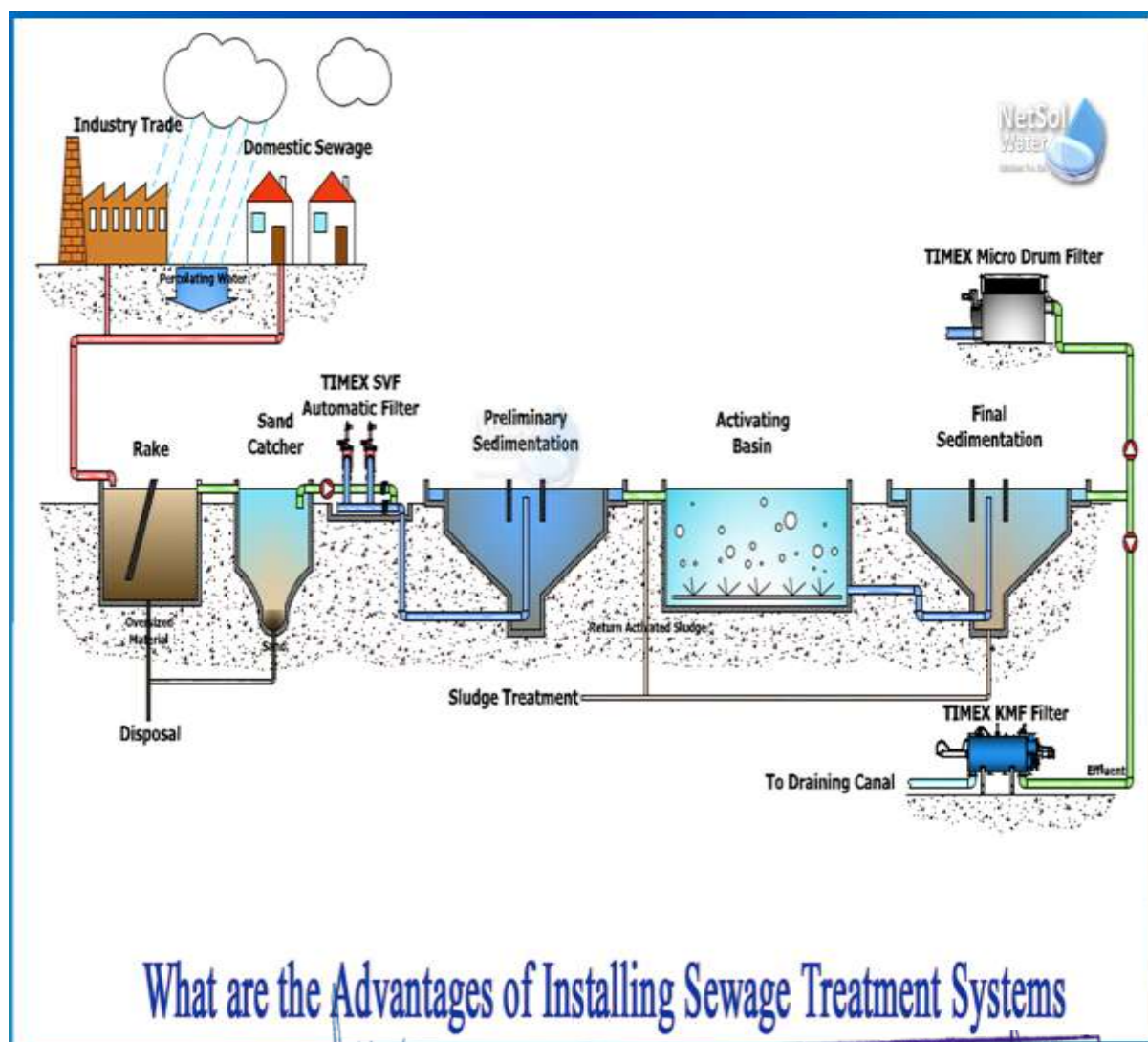
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Executive Summary

The University of Technology, Jaipur has established a comprehensive waste management infrastructure that demonstrates institutional commitment to environmental sustainability and regulatory compliance. As part of the university's adherence to NAAC Criteria 4 (Physical Facilities), Criteria 6 (Governance and Leadership), and Criteria 7 (Institutional Values and Social Responsibilities), the institution has implemented four critical waste management systems: Sewage Treatment Plant (STP), Solid, Liquid & General Waste Management, E-Waste Management, and Bio-Medical Waste Management. These integrated systems ensure environmental protection while promoting sustainable campus operations and providing educational opportunities for students and faculty.



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Introduction and Significance

The Sewage Treatment Plant at University of Technology, Jaipur represents a cornerstone of the institution's environmental infrastructure. This advanced wastewater treatment facility ensures that all liquid waste generated from campus operations undergoes proper treatment before discharge or reuse, thereby protecting local water resources and complying with environmental regulations. The STP serves as both a functional utility system and an educational resource for students studying environmental engineering and water treatment technologies.

- Treatment Capacity: 35 KLD (Kiloliters per Day)
- Technology: Advanced Biological Treatment with Tertiary Polishing
- Design Flow: Accommodates peak campus population including students, faculty, and staff
- Treatment Efficiency: >95% BOD and COD removal
- Discharge Standards: Compliance with Central Pollution Control Board (CPCB) norms
- Primary Treatment Systems
 - Screening Chamber: Removes large debris and floating materials
 - Grit Chamber: Eliminates sand, gravel, and heavy inorganic particles
 - Primary Clarifier: Gravity separation of settleable solids
 - Oil and Grease Separator: Removal of hydrocarbons and fats
 - Aeration Tank: Extended aeration process for biological treatment
 - Secondary Clarifier: Separation of activated sludge from treated water
- Tertiary Treatment Systems
 - Sand Filtration: Physical filtration for suspended solids removal



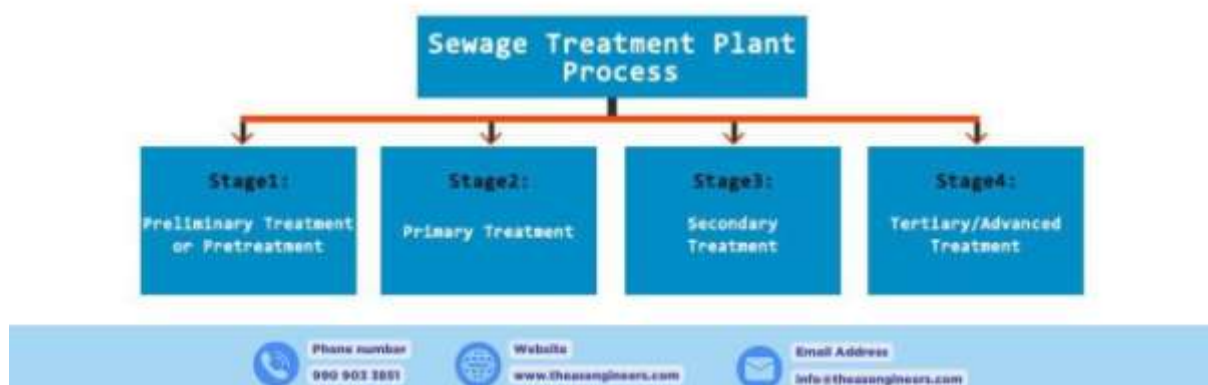
- Activated Carbon Treatment: Advanced organic pollutant removal
- Disinfection System: UV or chlorination for pathogen elimination
- pH Adjustment: Chemical treatment for optimal discharge parameters
- 1.3 Operational Process and Management
- Wastewater Collection

The university's comprehensive sewage collection network channels wastewater from various campus sources including hostels, academic buildings, administrative offices, cafeterias, and laboratories. Separate collection systems handle different waste streams to optimize treatment efficiency and prevent cross-contamination.

Treatment Process Flow



STP Plant and The Sewage Treatment Process



Primary Treatment (Physical)

Raw sewage enters the treatment plant through the inlet chamber where preliminary screening removes large objects and debris. The wastewater then flows through grit chambers where sand and heavy particles settle, followed by

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primary clarification where organic matter and suspended solids undergo gravity separation.

Secondary Treatment (Biological)

- Biologically active sludge in aeration tanks breaks down organic pollutants through microbial action. Extended aeration ensures complete oxidation of organic matter while maintaining optimal dissolved oxygen levels. Secondary clarifiers separate treated water from biological sludge, with a portion recycled to maintain active biomass.

Tertiary Treatment (Advanced)

- Advanced treatment processes remove residual pollutants to meet stringent discharge standards. Sand filtration eliminates fine suspended particles, while activated carbon adsorption removes persistent organic compounds. Final disinfection ensures pathogen-free effluent suitable for reuse or safe discharge.
- Sludge Management
- Generated sludge undergoes thickening, digestion, and dewatering processes. Digested sludge serves as soil conditioner for campus landscaping after proper stabilization and testing. Excess sludge receives proper disposal through authorized waste management contractors.

Water Reuse and Conservation

- Treated Water Applications
- Irrigation: Campus landscaping, gardens, and green areas
- Cooling Systems: HVAC and equipment cooling applications
- Construction Activities: Dust suppression and concrete mixing
- Fire Fighting: Emergency water supply systems
- Conservation Impact



The STP enables the university to reuse approximately 60-70% of treated wastewater, significantly reducing freshwater consumption and municipal water demand. This circular approach to water management supports campus sustainability goals while demonstrating responsible resource utilization.

STP @ University of Technology

