

PUSAT PENGAJIAN KEJURUTERAAN AWAM UNIVERSITI TEKNOLOGI MARA CAWANGAN PULAU PINANG



A Visit To Centralized Sewage Treatment Plant In UiTM Penang

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The course of Mechanical and Electrical Engineering is offered to Part 3 of Bachelor Degree in Civil Engineering (EC223) students. One of the topics in the course is Wastewater Treatment Process. A visit to the Centralized Sewage Treatment Plant (Loji Kumbahan Terpusat) in UiTM Cawangan Pulau Pinang was carried out with the consent from the Facility Unit to expose our students of the practices.

The capacity of the treatment is 10,000 PE. It is gated and locked to avoid trespassing by individual without the proper consent by Facility Unit. According to the facilitator, the first step of the process is Primary Mechanical Screen, which aims to remove physical objects such as papers and plastics to prevent damage and clogging of downstream equipment, piping, and appurtenances.



Gated Centralized Sewage Treatment Plant



Primary Clarifier



Briefing session



Secondary Clarifier



Sludge Holding Tanks

The following process is named Clarifier to remove suspended solids through gravity settling, providing a clarified liquid effluent. In the primary clarifier, solids would settle and remove from the wastewater. The secondary clarifier uses biological processes to further purify wastewater.

Sludge after the primary clarifier and secondary clarifier (as case may be) is temporary stored in the holding tank before disposal or further processing. The sludge tank accumulates solid, semisolid, or slurry residual material as a by-product of wastewater treatment processes.



Aeration Tanks

In between Primary and Secondary Clarifiers, a process happens in the Aeration Tank that tries to remove soluble contaminants, toxic chemicals and possible harmful pathogens from wastewater. Aeration as the name hints, provides oxygen to bacteria for treating and stabilizing the wastewater.

The last stage in the treatment is to release the treated water to drainage or river, after chlorine is added and the acceptable standard set by DOE and relevant authorities are verified.



An Overview of the Tanks