

國立臺北大學自然資源與環境管理研究所
104 學年度第一學期『環境工程科學概論』

課程講義(12)：廢水處理技術概要
Introduction to Wastewater Treatment

- SEWAGE ENGINEERING
 - Sewage Systems or Sewers: Sanitary Wastewater and Stormwater Runoff
 - Combined vs. Separate Sewage Systems
 - Pipelines vs. Channels: Pipe Flow vs. Open Channel (Open Surface) Flow
 - Sewage Engineering (Works):
Collection and Treatment of Wastewater as well as Disposal of Sludge
 - Sludge and Biomass: Integrated Wastewater Treatment Plant; Cogeneration of Heat and Power, Water Reclamation (Recovery) Center => Newater
 - Municipal Wastewater vs. Industrial Wastewater => Public vs. Private Sectors

- WASTEWATER TREATMENT ENGINEERING
 - Wastewater Treatment Units
 - ⇒Physical and Physico-Chemical Mechanisms
 - ⇒Biological Mechanisms
 - ⇒Chemical Mechanisms
 - Classification of Wastewater Treatment Plants
 - ⇒Primary Treatment 一級處理
 - ⇒Secondary (Biological) Treatment 二級 (生物) 處理
 - ⇒Tertiary (Advanced) Treatment 三級 (高級) 處理
 - Biological Treatment
 - ⇒Suspend Growth Treatment: Activated Sludge (活性污泥)、Membrane Bioreactors (MBR)、Aerated Lagoons and Oxidation Ponds (氧化塘)
 - ⇒Attached Growth Treatment: Tricking Filters (滴濾池)、Rotating Biological Contactor (RBC 生物旋轉盤)
 - ⇒Hybrid Systems 組合生物處理法—A/O、兩級 A/O、A2/O、UNITANK
 - ⇒Constructed Wetland (人工濕地) and Ecological Engineering
 - ⇒Anaerobic Treatment to Retain Biomass and Water Reclamation
 - Sludge Treatment
 - ⇒Anaerobic Digestion; Dewatering and Drying => Water Content; Disposal
 - Advanced Wastewater Treatment and Water Reuse
 - ⇒Nitrogen and Phosphorus Removals; Removal of Heavy Metals
 - ⇒Removal of Dissolved Solid and Sea Water Desalination
 - Effluent Standards and Emerging Pollutants => Water Pollution Fee