THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

Department of Civil & Environmental Engineering

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Course : CIVL 4460 Process Design of Environmental Engineering Facilities
Units : [3-0-3:3]
Principal Instructor : Dr. G.H. Chen Rm. 3577 Tel: 2358-8752 Email: ceghchen@ust.hk
Co-Instructor : Dr. Woody Wu Rm. 4601 Tel: 2358-7180 Email: cewudi@ust.hk
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Lectures : Mon & Wen 10:30 AM – 11:50 AM, Rm 5508 [Lift 25/26]
Tutorial : Fri 04:30 PM – 05:20 PM, Rm 5508 [Lift 25/26]
Site visits : TBA

*** Course Description ***

This course emphasizes on the practical design of various elements of water and wastewater treatment systems, including aeration, coagulation & flocculation, sedimentation, filtration, screening, pumping, disinfection, sludge handling & disposal. Standard activated sludge process and a conventional water treatment process will be used to illustrate actual plant design.

*** Course Outline ***

Overall View

- Introduction of water treatment
- Introduction of wastewater treatment

Design Preparation

- Determination of design flow and constituent loading
- Flow and material balance

Design of Unit Operation & Process

- Bar screening
- Grit chamber
Design of Biological Treatment Process

- Sedimentation
- Coagulation & flocculation

Design of Biological Treatment Process

- Secondary treatment process
- Nutrient removal process
- Sludge bulking control
- Biological filter

Design of Post-treatment Process

- Sludge thickening & dewatering
- Sludge digestion
- Effluent disinfection (optional)

*** Reference Texts ***


*** Mark Allocation ***

i) Site Visit Reports (2) 50% of final mark
ii) Design Projects 50% of final mark