

Course Name:	SCBE 307 Water Pollution Control and Management 3(2-3-5)
Lectures:	Friday 10:30 – 12:30 (lecture), 13.30-16-30 (lab)
Location:	R401, R Building and B313/7, B Building Phayathai Campus
Course-coordinator:	Dr.Toemthip Poolpak

Course Syllabus

Course Description

The aim of this course is to introduce the students to the area of water and wastewater treatment. The course will cover water chemistry; characteristics of water & wastewater; primary, secondary & tertiary treatment processes; sludge disposal; and design of water and wastewater treatment plants. At the end of the course the students will have a working knowledge of the water and wastewater industry and have the skills to perform a preliminary design of a treatment plant. This will be achieved through descriptive lectures with an industry fieldtrips and tutorials.

Course Learning Outcomes (CLOs)

After the course, the students are able to

1. Explain the basic concept of chemistry.
2. Know how to characterize the constituents in potable water and wastewater.
3. Explain the physical, chemical and biological factor affecting the treatment processes.
4. Understand the fundamentals of water and wastewater treatment.
5. Perform a preliminary design some steps in a water and/or wastewater treatment plant

Teaching and Evaluation Methods

Midterm and final examinations are in a written format and will be announce at the beginning of the class or with this course outline.

Laboratory and fieldtrip is required (if time and the transportation is permitted) and will be announced in class.

Evaluation

1. Mid-term	30%
2. Final examination	30%
3. Class participation	20%
4. Fieldtrip laboratory and report	(10% + 10%)

Students will be evaluated from their total score (out of 100%). Grading system is A, B⁺, B, C⁺, C, D⁺, D and F.

* If situations are permitted.

Course Coordinator: Dr. Toemthip Poolpak (TP)

Instructor: Associate Professor Dr. Prayad Pokethitiyook (PP)

Dr. Toemthip Poolpak (TP)

Teaching Plan

Month	Date	Lecture-Topic	Instructor
Jan	13	The design and construction process	PP
	20	Lime-soda softening	PP
	27	Coagulation and flocculation	PP
Feb	3	Sedimentation	PP
	10	Ion exchange	PP
	17	Reverse osmosis and nanofiltration	PP
	24	General water supply design consideration	PP
Mar	10	Mid-Term Examination	PP
	17	Filtration and disinfection	TP
	24	Headworks and preliminary treatment	TP
	31	Primary treatment	TP
Apr	7	Wastewater microbiology	TP
	21	Secondary and tertiary treatment	TP
	28	Wastewater plant residuals management	TP
May	2	Final Examination	TP

Month	Date	Lecture-Topic	Instructor
Jan	13	Safety rule and regulation	PP
	20	Technique in chemical preparation	PP
	27	Report writing	PP
Feb	3	Sampling technique	PP
	10	Solid in water	TP
	17	Coagulation	TP
	24	Flocculation	TP
Mar	10	Mid-Term Examination	
	17	MPN	TP
	24	Adsorption	TP
	31	Field trip I	PP/TP

Apr	7	Field trip II	PP/TP
	21	Presentation	PP
May	2	Final Examination	TP

References:

Mackenzie L. Davis. Water and wastewater engineering: design principles and practice. International Edition 2011. The McGraw-Hill Companies.

John C. Crittenden et al. MWH's water treatment: Principles and Design. 3rd Edition. John Wiley & Sons.