Class Syllabus

화학적수처리특론I (Special Topics in Chemical Wastewater Treatment I)

Professor	Name	Chang-Gu Lee	Course	Target Student	Department	Environmental Engineering
	Position	Assistant professor			Major	Environmental Engineering
	Department	Environmental Engineering				

1. Overview of the Subject

Water pollution has emerged as a difficult problem around the world, which urgently requires the development of environmentally friendly wastewater treatment technologies. High oxidizing processes (AOPs), which produce highly reactive and powerful oxidants in these races, have been developed in recent decades. Among them, hydroxyl radicals are oxidants that can decompose most of the irregularly contaminants into non-selectively less harmful products. Therefore, AOPs can be considered a new and promising green chemical approach for wastewater treatment, and this subject will explore AOPs technology, which will dominate the various wastewater treatment technologies in the coming years.

2. Overview of Teaching Method

Lecture and debate

3. Grading

Midterm exam and presentation (1) 40%
Final exams and presentations (2) 40%
20% attendance

4. Textbook and References

	Textbook	Author	Publisher	Year
Textbook	Advanced oxidation processes for wastewater treatment: emerging green chemical technology	Suresh Ameta		

5. Class Plan

Week	Content	Method	Note
1	Introduction	Lecture / Debate	
2	UV-Hydrogen Peroxide Processes	Lecture / Debate	
3	Fenton and Photo-Fenton Processes	Lecture / Debate	
4	Ferrioxalate-Mediated Processes	Lecture / Debate	
5	Ozone-Based Processes	Lecture / Debate	
6	Photocatalysis	Lecture / Debate	
7	Presentation (1)	Presentation	
8	Midterm		
9	Sonolysis	Lecture / Debate	
10	Microwave/Hydrogen Peroxide Processes	Lecture / Debate	
11	Gamma-ray, X-ray and Electron Beam Based Processes	Lecture / Debate	
12	Supercritical Water Oxidation	Lecture / Debate	
13	Electrochemical Oxidation Processes	Lecture / Debate	
14	Catalytic Wet Peroxide Oxidation	Lecture / Debate	
15	Presentation (2)	Presentation	
16	Final Exam		

6. Others