

Course No.	457.621	Lecture No.	001	Course Title (Subtitle)	Biological processes in environmental engineering	Credit	3
Representative Instructor	Name	Yongju Choi (post : Assoc. Prof.)		Homepage	http://wqe.snu.ac.kr		
	E-mail	ychoi81@snu.ac.kr		Phone No.	02-880-7376		
	Interview Time/Place : Appointment based						
Attachment	(Korean)						
	(English)						
Prerequisite Course							
*1.Purpose of Course	Understand the background, theories, techniques, and applications of biological approaches for the management of water, soil, and solid waste. Obtain in-depth knowledge on the biological approaches applied for wastewater treatment, study current issues of research, and discuss the future direction of research and applications.						
*2.Materials and Reference	1. Lecture notes 2. Rittmann, B. E. and McCarty, P. L. (2001) Environmental Biotechnology: Principles and Applications, McGraw-Hill						
*3.Evaluation Method	Attendance	Final exam	Homework	Attitude	Other	Total	
	10	40	20	0	30	100	
	Remark of Others		Student presentation & discussion / Quiz				
*4.Lecture Plan	W1: Introduction to biological processes in environmental engineering / Basics of microbiology W2: Enzyme reactivity and inhibition / Stoichiometry of biochemical reactions I W3: Stoichiometry of biochemical reactions II & III W4: Microbial energetics / Microbial kinetics W5: Reactor analysis I & II W6: Microbial kinetics in reactors I & II W7: Microbial kinetics in reactors III / Bioreactor analysis – numerical solution W8: Wastewater treatment overview / Activated sludge process W9: Biological nutrient removal / Practical applications of biological wastewater treatment W10: Anaerobic processes / Other biological processes for energy and resource recovery W11: Recalcitrant compound biotransformation mechanisms / Discussion & review W12: Final exam W13-15: Student presentation & discussion						
5.References to Course Registration	1. This class is run in English. At least moderate ability of English listening and reading is required. 2. By the university law, being absent for more than 1/3 of the class will result in "F" grade.						
6. Support Services for Students with Disabilities	For Lectures						
	For Assignments & Evaluations						
	Others		Will follow the highest standard among the university recommendations				