

CEE3414-01 (1ST SEMESTER, 2021)



Created Date	2021-01-20 02:08:23	Last-Modified	2021-01-20 03:04:05
Course Title	WATER MANAGEMENT ENGINEERING	Credit	3
Location	EngHB043/Realtime online lecture	Time	Mon8/Fri6,7
Instructor	Kim Hyoungil	Department	공과대학 건설환경공학과
Office	#1 Engineering Building, N510	Telephone	2798
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Core Competencies	공학기초능력	창의적융합능력	도구활용능력
	50	20	30
Target Students	Undergraduate students(junior) who are majoring in civil and environmental engineering, and other related engineering areas.		
Course Description & Goals	<p>The main objective of this course is to introduce engineering students with fundamentals of water management engineering involving drinking water treatment, wastewater transport & treatment, and law and policy on water management.</p> <p>Topics of the course cover the principle of physical, chemical, biological treatment processes and law and policy on water management.</p>		
Prerequisite	Environmental Engineering CEE3330 course is highly recommended to take before this course. However, the CEE3330 is not a prerequisite for this course.		
Course Requirements	<p>Lecture (3h)</p> <p>PPT and writing lecture, open discussion, and term-project presentations by students.</p>		
Grading Policy(Absolute)	Mid-term Exam. (25%), Final Exam. (30%), Term Project (25%), Homework (10%), Participation in class (10%)		
Texts & References			
Instructor's Profile	<p>Hyoung-il Kim Assistant Professor Dept of Civil and Environmental Engineering Yonsei University, Seoul, KOREA</p> <p>Homepage: http://spea.yonsei.ac.kr/</p>		
TA's Name & Contact Information	to be announced, if any		
Syllabus in English	<p>This course is designed for junior students in civil and environmental engineering. The course covers fundamentals of water management engineering involving drinking water treatment, wastewater transport & treatment, and law and policy on water management; Topics of the course include the principle of physical, chemical, biological treatment processes and law and policy on water management.</p> <p>BLENDING(2-hour-online + 1-hour-offline(Location: B043))</p> <p>Textbook:</p> <p>Water and Wastewater Engineering: Design Principles and Practice, by Mackenzie L. Davis, McGraw Hill Wastewater Engineering Treatment and resource recovery by Inc. Metcalf & Eddy, McGraw Hill</p> <p>-NO TEXTBOOK IS REQUIRED. Relevant handouts will be given in class.</p>		

Week	Period	Weekly Topic & Contents	Course Material Range & Assignments	Reference
1	2021-03-02 2021-03-08	Introduction to the course	Water and Wastewater Engineering: Design Principles and Practice, by Mackenzie L. Davis, McGraw Hill, Chapters 1-2	(3.2.) Spring semester classes begin (3.5. - 3.9.) Course add and drop period
2	2021-03-09 2021-03-15	General water supply design and treatment system - Introduction to drinking water treatment processes	Water and Wastewater Engineering: Design Principles and Practice, by Mackenzie L.	(3.5. - 3.9.) Course add and drop period

			Davis, McGraw Hill, Chapters 1-2	
3	2021-03-16 2021-03-22	[Physico-chemical unit processes] Coagulation and Flocculation I - Coagulation theory - Coagulation practice - Flocculation theory	Water and Wastewater Engineering: Design Principles and Practice, by Mackenzie L. Davis, McGraw Hill, Chapters 3	
4	2021-03-23 2021-03-29	[Physico-chemical unit processes] Coagulation and Flocculation II - Flocculation practice - Mixing theory - Operation and maintenance	Water and Wastewater Engineering: Design Principles and Practice, by Mackenzie L. Davis, McGraw Hill, Chapters 3	
5	2021-03-30 2021-04-05	[Physico-chemical unit processes] - Sedimentation theory - Basin design - Operation and maintenance	Water and Wastewater Engineering: Design Principles and Practice, by Mackenzie L. Davis, McGraw Hill, Chapters 7	
6	2021-04-06 2021-04-12	Water Conditioning - Water conditioning parameters - pC-pH diagrams for acid-base species equilibria - Total alkalinity and other related terms	Materials are to be announced or provided	(4.7.) First third of the semester ends
7	2021-04-13 2021-04-19	[Physico-chemical unit processes] Filtration - Membrane filtration theory - Properties of MF/UF membrane - Reverse osmosis (RO) theory - Properties of RO/NF membrane	Water and Wastewater Engineering: Design Principles and Practice, by Mackenzie L. Davis, McGraw Hill, Chapters 6, 9	(4.19. - 4.23.) Midterm Examinations
8	2021-04-20 2021-04-26	Mid-term Examination		(4.19. - 4.23.) Midterm Examinations (4.26. - 4.28.) Course withdrawal period
9	2021-04-27 2021-05-03	[Biological processes] - Introduction to wastewater treatment processes	Wastewater Engineering Treatment and resource recovery by Inc. Metcalf & Eddy, McGraw Hill, Chapters 1 Announce the plan of Term Project	(4.26. - 4.28.) Course withdrawal period
10	2021-05-04 2021-05-10	[Biological processes] - Fundamentals of biological treatment I,II	Wastewater Engineering Treatment and resource recovery by Inc. Metcalf & Eddy, McGraw Hill, Chapters 2, 7	(5.5.) Children's Day
11	2021-05-11 2021-05-17	Disinfection - Chemical reactions of disinfectants - Chlorination - Various disinfection by-products	Materials are to be announced or provided	(5.17.) Second third of the semester ends
12	2021-05-18 2021-05-24	Law and Policy on Water Resources Management I (국가물관리에 관련된 법제도와 정책 I)	Materials are to be announced or provided (한국어 강의, offline(B043))	(5.19.) Buddha's Birthday
13	2021-05-25 2021-05-31	Law and Policy on Water Resources Management II (국가물관리에 관련된 법제도와 정책 II)	Materials are to be announced or provided (한국어 강의, offline(B043))	
14	2021-06-01 2021-06-07	Term-project presentation		(6.6.) Memorial Day (6.7. - 6.18.) Self-study

				and Final Examinations
15	2021-06-08 2021-06-14	Self-study and summery		(6.7. - 6.18.) Self-study and Final Examinations
16	2021-06-15 2021-06-18	Final Examination		(6.7. - 6.18.) Self-study and Final Examinations

* Changes in Management of Academic Semester

During the midterm examinations (2021.4.19. - 4.23.) and final examinations (2021.6.7. - 6.8.) period, classes or self-study should be continued unless there is an exam scheduled during the week.

* According to the University regulation section 57-2, students with disabilities can request special support related to attendance, lectures, assignments, or exams by contacting the course professor at the beginning of semester. Upon request, students can receive such support from the course professor or from the Center for Students with Disabilities(OSD). The following are examples of types of support available in the lectures, assignments, and exams:

(However, actual support may vary depending on the course.)

[Lecture]

- Visual Impairment: alternative, braille, enlarged reading materials, note-taker
- Physical Impairment: alternative reading materials, access to classroom, note-taker, assigned seat
- Hearing Impairment: note-taker/stenographer, recording lecture
- Intellectual Disability/Autism: note-taker, study mentor

[Assignments and Exam]

- Visual, Physical, Hearing Impairment: extra days for submission, alternative type of assignment, extended exam time, alternative type of exam, arranging separate exam room, and proctors, note-taker
- Intellectual Disability/Autism: personalized assignments, alternative type of evaluation

