

Department of Civil Engineering			
Environmental Engineering II (61451)			
Total Credits	3		
major compulsory			
Prerequisites	P1 : Environmental Engineering I (61352) OR Environmental Eng'g I (61350) P2 : Hydraulics (61345)		
Course Contents			
Water and wastewater treatment systems. Physical, chemical, and biological treatment processes. Design and operation of treatment plants. Wastewater reuse systems and sludge management.			
Intended Learning Outcomes (ILO's)		Student Outcomes (SO's)	Contribution
1	Interpret water quality, and predict water demand and waste water flows.	A	20 %
2	Design water and waste water treatment systems.	C	80 %
Textbook and/ or References			
Makkenzie L. Davis. Water and Wastewater Engineering, McGraw-Hill, 2010.			
Assessment Criteria		Percent (%)	
Mid. Term Exam		25 %	
Homeworks		10 %	
Projects		15 %	
Final Exam		50 %	
Course Plan			
Week	Topic		
1	Introduction to Environmental Systems Population prediction		
2	Chemistry Review		
3	Introduction to Water Supply Design		
4	Coagulation and Flocculation		
5	Water Softening		
6	Sedimentation FIRST EXAM		
7	Granular Filtration		
8	Disinfection		
9	Wastewater (WW) Collection and Treatment Design Considerations		
10	Head-works, preliminary, and primary WW treatment		
11	WW Microbiology		
12	WW Secondary Treatment: Attached Film Systems		
13-14	WW Secondary Treatment: Suspended Growth System SECOND EXAM		
15	WW Disinfection and Post- Aeration Sludge Processing Water reuse		
16	FINAL EXAM		