

415.706 Advanced Environmental Hydraulics

I. River Mixing Theory

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Lecture Calendar:

Week	Contents	Assignments/Exam.
Week 1	Introduction to Environmental Hydraulics (I)	
Week 2	Introduction to Environmental Hydraulics (II)	HW #1 (Outfall-water intake)
Week 3	Diffusion Process and Solutions (I)	HW #2 (Diffusion coefficient and peak concentration)
Week 4	Diffusion Process and Solutions (II)	
Week 5	Diffusion Process and Solutions (III)/ Turbulent Transport	HW #3 (Analytical solution)
Week 6	Dispersion Process (I)	Term project proposal presentation
Week 7	Dispersion Process (II)	HW #4 (Dispersion within lanes)
Week 8	Mixing in Rivers (I)	HW #5 (Longitudinal dispersion)
Week 9	Mixing in Rivers (II)	HW #6 (Moment method and routing procedure)
Week 10	Dispersion of Decaying Substances	HW #7 (DO concentration profile)
Week 11	Mixing in Estuary (I)	

Week 12	Mixing in Estuary (II)	HW #8 (Analytical solution)
Week 13	Numerical Modeling (I)	
Week 14	Numerical Modeling (II)	
Week 15	Term project final report presentation	Final Exam.