UNIVERSITY OF MICHIGAN
Department of Civil & Environmental Engineering
Hydrology and Floodplain Hydraulics
CEE 421 - FALL 2007

Instructor: Nikolaos D. Katopodes
Lecture: TuTh 11:30-1:00, 1109 FXB Building
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Graduate Student Instructors:

Calvin Creech
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Text: *Hydrology and Floodplain Analysis* by Bedient, Huber and Vieux.
4th Edition, Prentice Hall, 2008

Grading: Homework 20%; Lab Reports 30%; Mid-term 20%; Final Exam 30%.

Rules and Regulations:

The honor code will be strictly observed in both homework and examinations. The honor Code is based on integrity, a characteristic that is built into the profession. It is reflected in the original and reliable work of all good engineers. When students accept the Honor Code, they acknowledge that it is dishonorable to receive credit for work that is not the result of their own efforts. The application of the Engineering College Honor Code to work done in CEE 421 includes the following: All problem sets (homework assignments) are to be completed on your own. You are allowed to consult with other students in the current class during the conceptualization of a problem but all written work, whether in scrap or final form, is to be generated by you working alone. You are not allowed to sit together and work out the details of the problems with anyone. You are not allowed to discuss the problem set with previous class members, nor anyone else who has significant knowledge of the details of the problem set. You are also not allowed to possess, look at, use, or in anyway derive advantage from the existence of solutions prepared in prior years, whether these solutions were former students' work product or copies of solutions that had been posted by the instructor.

Lab reports and homework sets are due **at the beginning** of the lab or lecture period, on the announced due day. Late projects and homework will be penalized 20% for each day they are overdue. All exams will be closed book and will cover both theory and applications. You may use, however, one sheet (two pages) of information that you think may be helpful in the examination.

There will be an email group for all class participants, so check your messages frequently. You will be responsible for monitoring announcements, assignments and reading material posted on the class web page. Bookmark the page, and set up a reminder of your choice to check for new postings.

COURSE OUTLINE AND ASSIGNMENTS

Month	Day	Topic	Reading	Problems
September	4	Introduction; The hydrologic cycle	1-10	
	6	Precipitation; Evaporation; Infiltration; Stream flow measurement	11-80	
	11	The Rational Method; Frequency Analysis and IDF curves	96-102 568-570	
	13	Hydrograph Analysis	102-115	Problem Set
	18	Unit Hydrograph Theory	115-119	
	20	S-Curve Method	119-122	Problem Set
	25	Convolution and Decomposition	123-124	
	27	Complex Storms	124-127	Problem Set
	29	Synthetic Hydrographs; Snowfall and Snowmelt	127-141 151-159	
October	2	Flood routing	241-245	Problem Set
	4	Reservoir Flood Routing	257-262	
	9	River Flood Routing	248-257	Problem Set
	11	Detention Basin Design	263-268	
	16	**Study Day**		
	18	**Exam # 1**		
	23	Floodplain Hydraulics	444-448	
	25	Uniform Flow	448-451	Problem Set
	30	Channel Conveyance	451-453	
November	1	Energy Conservation	453-455	Problem Set
	6	Critical Depth Concept	455-458	
	10	Channel Controls		Problem Set
	13	Momentum Conservation	467-459	
	15	Hydraulic Jumps-Energy dissipation		Problem Set
	20	Gradually-Varied Flow (GFV)	459-460	Problem Set
	22	**Thanksgiving Holiday**		
	27	Flow on mild and steep slopes	464-467	
	29	Longitudinal Profiles		Problem Set
December	4	Numerical solution of GFV		
	6	Location of Jumps in GVF profiles		Problem Set
	11	Flow and channel optimum design		
	19	**Final Exam 10:30 – 12:30**		