

CE 365K Hydraulic Engineering Design, Spring 2016 Review for Second Exam

The material is classified according to *Bloom's Taxonomy of Educational Objectives*:

Level	Title	Meaning
1	Knowledge	Definitions, facts, formulas
2	Comprehension	Explanation of definitions, formulas, problem solving procedures
3	Application	Know how to use a formula or procedure to solve simple problems
4	Analysis	Break down a complex problem and solve by steps
5	Synthesis	Derivation of basic formulas, design of new systems
6	Evaluation	Advantages and limitations of alternative approaches

Lectures

Lecture	Topic	Level
1	HEC-RAS example (Dr Burgin)	2
2	Hydraulic Engineering Design	3
3	Water quality (Dr Barrett)	4
4	Working with project data	3
5	Detention Pond Design	5
6	City of Austin project design (Reem Zoun, Tom Franke)	3
7	Project design (Assignment 7)	4
8	Design development (Cassandra Fagan, Cyndi Castro)	2

Readings

Topic	Level
Haested Section 5.1 to 5.4 Detention pond design concepts	2
Haested Section 5.5 Storage and hydraulic relationships	4
Haested Section 5.6-5.7 Storage indication method	5
Austin Drainage Criteria Manual Section 1.2.4 Drainage Policy	2
HEC-RAS Users Manual pp. 6-30 to 6-60 Bridges and culverts	4

Expected Knowledge

1. Same skills as for first exam
2. Describe how to use HEC-RAS to compute the water surface profile in a creek
3. Describe how to design a new culvert or bridge in HEC-RAS
4. Describe how to delineate a watershed in ArcGIS and compute its properties
5. Define the water quality characteristics of a creek and determine whether they satisfy Texas Water Quality standards
6. Determine the elevation-storage-discharge relationships for a detention pond
7. Derive the routing equation used in the storage indication method
8. *Make a comparative assessment of alternative design methods that we have covered in class this semester for particular tasks.*

You may bring *two* review sheets of 8/5 x 11 inches with you with anything on both sides of the paper that you want.