**CE 365K Hydraulic Engineering Design, Spring 2014**

**Review for Second Exam**

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

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| --- | --- | --- |
| **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**

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| **Lecture** | **Topic** | **Leve**l |
| 1 | Design project scope | 2 |
| 2 | Project information (Michael Barrett, Karl McArthur, Allan Shearer) | 2 |
| 3 | Introduction to HEC-HMS | 3 |
| 4 | Building a basemap using ArcGIS | 5 |
| 5 | Capital Improvement Planning for Watershed Protection in Austin (Andrea Bostrom, Jorge Morales, John Middleton) | 2 |
| 6 | Hydroeconomic analysis of flooding in North Carolina | 4 |
| 7 | Introduction to HEC-RAS | 5 |
| 8 | Project reviews. Introduction to StormCAD | 2 |
| 9 | Open channel flow in pipes and Waller Creek | 3 |

**Expected Knowledge**

1. How is the region around a project site represented in a Geographic Information System?
2. How is HEC-HMS used to determine design discharges?
3. How is HEC-RAS used to determine design water surface elevations?
4. How is planning for watershed protection done in the City of Austin, especially for Waller Creek?
5. How is flood mapping and flood mitigation done in North Carolina?
6. How to relate the discharge, depth and velocity of water in an open channel for uniform flow and for critical flow.
7. How to determine the mean annual flood loss for a property.

You may bring a review sheet 8/5 x 11 inches with you with anything on it on both sides of the paper that you want.