

Water Resources Engineering, CIV K236/7, ENV K245/L**Fall 2011 Syllabus****Lecture: Mon/Wed, Room B107, 10:30 – 11:45 pm****Lab: Wed, Room B107, 1:00 – 2:40 pm**

Instructor: Prof. Wanda Short
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Office Hours: Tues/Thur 1:00 – 2:00 PM; Wed 3:00 – 4:00 PM; Other Dates/Times by Appointment

Course Descriptions:

CIV* K236; ENV K245 (3 Credit Hours) Water Resources Engineering: The course content is designed for civil and environmental students to introduce a variety of aspects of Water Resources and Storm Water Management. This course starts with the Hydraulic Cycle to study concepts of rainfall the course progresses to storm water run-off and hydraulic design. Two principal methods of determining Stormwater run-off will be introduced; the Rational Method which is the historic method for small drainage basins and the TR-55 developed by the USDA Soil Conservation Service used for more complex basins. The majority of the time will be spent on the latter TR-55 methodology. A number of design problems such as gutter flow analysis, culvert analysis, weirs and orifices will also be explored. In addition students will be introduced to water quality concepts and practices as a part of emerging technologies. Corequisite: CIV* K237; ENV K245L

CIV* K237; ENV K245L (1 Credit Hour) Water Resources Engineering Lab: This course gives the methodology used in determining storm water runoff for small urban areas. This lab is used as a practical exercise to develop the methods of Water Resources Engineering to actual design of a storm water system including a cost estimate. Corequisite: CIV* K236; ENV K245

Textbook:

Hydraulic Analysis and Design, 3rd edition; McCuen, Richard H., ISBN 0-13-142424-6

Portions of the text will be utilized and will be augmented with additional materials as listed.

Additional Materials which may be obtained “on line” are listed with their internet addresses; 2004 Connecticut Stormwater Quality Manual (www.ct.gov/dep/stormwater).

Instructor Assistance:

Seeking help from the instructor outside of class is encouraged if you are having difficulty understanding course material. Feel free to Email/call for an appointment during office hours.

Academic Integrity:

Academic integrity is essential to a useful education. Failure to act with academic integrity severely limits a person's ability to succeed in the classroom and beyond. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the College. In this class and in the course of your academic career, present only your own best work; clearly document the sources of the material you use from others; and act at all times with honor. A grade of “0” may be assigned upon infraction of this policy.

Attendance:

This course is designed in such a way that a student should get more from the in-class activities than from the textbook alone. Therefore, students are expected to attend class regularly. Though students will not be penalized for non-attendance, they will be responsible for material covered in their absence. It will be the student's responsibility to determine what assignments have been missed and to ensure that they are made up in a timely manner.

Class Room Policies:

Cell phones brought to class shall be off and out of site (no texting). Language and behavior that is disrespectful, or disruptive, to others is unacceptable; Students should refer to their Student Handbook for examples of such behavior as well additional school policies.

Assignments:

Quizzes, homework or papers missed for any reason cannot be made up unless **prior** arrangements have been made with the instructor. Assignments not received on date due may result in alternate assignment with reduction of grade.

Final Grade – The student’s final grade will be based on the weighted average of quizzes and papers which will account for 80% of your grade. Assigned homework and a portfolio will make up the remaining 15% and 5%, respectively. Attendance will be noted for each class and may be used for extra-credit of 1 to 3 points in determining final grades.

Home work will receive a grade of 0, 1, 2, 3, or 4

- Not Attempted = 0
- Minimal Attempt = 1
- Moderate Attempt and Poor Results = 2
- Moderate Attempt and Fair results = 3
- Good Attempt and Largely Correct results = 4

Late home works, unless otherwise excused, will be marked at 25% off.

Quizzes – Students will be allowed one 8 1/2 x 11 sheet of paper, double-sided, for formulas and conversion factors only (no definitions or other written notes).

“Lab” Grades will be based on the weighted average of assigned lab write ups. Missed labs generally cannot be made up, and will receive a “0” grade, unless arrangements have been made with the instructor.

Students must have their **calculators, cell phones will not be allowed** as a substitute; failure to bring a calculator will result in lost points as many questions will be impossible to answer without one. Quizzes will be based on lecture material and all assigned sections of the text, and homework.

Portfolio Course Requirements – Students will assemble a **notebook**, to be made up of lecture notes, assignments, reports, papers and quizzes.

Withdrawal:

A student who finds it necessary to discontinue a course must complete a "Withdrawal Request Form" available in the Registrar's office within the time limits of the semester calendar. Students who do not withdraw, but stop attending will be assigned an "F" signifying a failing grade.

Disabilities Statement:

If you are a student with a disability and believe you will need accommodations for this class, you must contact the Disabilities Counseling Services at 860/823-2830. To avoid any delay in the receipt of accommodations, you should contact the counselor as soon as possible. The instructor cannot provide accommodations until an accommodation letter from the Disabilities Counselor is received.

Lecture Schedule

Chap. 1 – Introduction to Hydrology – Sections 1.1 through 1.4

Chap. 3 – Watershed Characteristics – All Sections

Quiz #1 Covering Chapters 1 & 3

Chap. 4 – Precipitation – Sections 4.1 through 4.2.3; 4.6.1 & 4.6.2

Chap. 5 – Frequency Analysis – Section 5.1

Quiz #2 Covering Chapters 4 & 5

Chap. 7 – Peak Discharge Estimation – Sections 7.1, 7.2, 7.7.2 & 7.8 (TR-55)

Chap. 7 – Peak Discharge Estimation – Section 7.6 (Rational Method)

Chap. 6 – Subsurface Hydrology – Sections 6.1 & 6.2

Quiz #3 Covering Chapters 6 & 7

Chap. 8 – Hydraulic Design – Sections 8.1 through 8.5; 8.7, and 8.8.1 & 8.8.2

Quiz #4 Covering Chapter 8

Water Quality - 2004 CT Stormwater Quality Manual

As an Introduction to Stormwater Quality the following sections will be covered.

Chap. 3 – Preventing and Mitigating Stormwater Impacts – Sections 3.1 through 3.8

Chap. 5 – Source Control Practices and Pollutant Prevention – Sections 5.1 through 5.4b

Quiz #5 Covering Stormwater Quality Manual, Chapters 3 & 5

Chap. 6 – Intro to Stormwater Treatment Practices – Sections 6.1 through 6.6

Chap. 7 – Hydrologic Sizing Criteria – Sections 7.1 through 7.7

Quiz #6 Covering Stormwater Quality Manual, Chapters 6 & 7

***Notes:

- In addition to quizzes, homework and papers will also be assigned during the semester
- Portfolio Course Requirements: Students will assemble a notebook, to be made up of lecture notes, assignments, reports, papers and quizzes.

Lab Schedule (tentative)

Unless otherwise discussed in Lab each weeks lab will be due at the beginning of the following lab session.

1. Infiltration and Runoff
2. Topography
3. Drainage Basins
4. Time of Concentration
5. Channel Flow
6. Graphical Peak Discharge
7. Gutter/Shallow Flow
8. Permeability
9. Weirs & Orifices
10. Culvert Design
11. Water Quality

The following resources are either free on line professional journals or public domain documents available digitally on line:

www.stormh2o.com

www.erosioncontrol.com

CT DEP 2004 Stormwater Quality Manual – to find,

- Google – “ct dep stormwater manual”; click on DEP Stormwater Manual and click on “[complete manual](#)” or [individual chapters on-line](#)
- Or go to www.ct.gov/dep. Once in the DEP site use the internal search for “stormwater quality manual” which should take you to the appropriate page.

***Note:

“**Lab**” **Grades** will be based on the weighted average of assigned lab write ups. Missed labs generally cannot be made up, and will receive a “0” grade, unless arrangements have been made with the instructor.