Three Rivers Community College

Water Resources – CIV K236 & X List ENV K245
Lab – CIV K237, & X List ENV 245L
Fall 2010
B 107; M, W; 10:30 am – 11:45
Lab W 1:00 – 2:40

Instructor; Donald W. Gerwick, P.E., L.S., C.F.M.

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Email dgerwick@trcc.commnet.edu or don@gerwickmereen.com
Office Hours: T 4:00 – 5:30, W 3:00 – 4:45, R 4:00 – 5:00
Additional Days and Times by Appointment are Available

Text: **Hydraulic Analysis and Design,** 3rd edition; McCuen, Richard H.
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).

The course content is designed for civil and environmental students to introduce a variety of aspects of Water Resources and Storm Water Management. 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.

Finally, as water quality is an integral part of stormwater runoff and essential to water as a resource, the latter part of the semester will explore a number of water quality techniques using the CT 2004 Stormwater Manual.

Labs will follow lectures as closely as possible based on the following topics
Topographic Contours
Drainage Flow
Drainage Basin Boundaries
Drainage Basin Characteristics
Site Visit – East Lyme Outdoor Stormwater Classroom
SCS TR – 55
Average CN Values
Time of Concentration – Sheet Flow, Shallow Concentrated Flow, Channel Flow
Graphical Peak Discharge

Peak Discharge – Rational Method (Same Drainage Basin)
Hydraulic Design of Culvert
Gutter Flow Analysis (Using Plan and Profile Drawings)
Stormwater Quality Design Exercise

All Labs will follow text material to the extent possible; and many are multi-week labs
Chap. 1 – Introduction to Hydrology - Sections 1.1 through 1.4

Chap. 3 – Watershed Characteristics – All sections

Quiz 1

Paper 1

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

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

Chap. 6 – Subsurface Hydrology – Sections 6.1 & 6.2

Quiz 3

Paper 2

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

Chap. 8 – Hydraulic Design – Section 8.1 through 8.5, 8.7 & 8.8.1 to 8.8.2

Quiz 4

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 5.4

Chap. 6 – Introduction to Stormwater Treatment Practices – Section 6.1 through 6.6

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

Final Quiz

Final Grade – The students final grade will be based on the weighted average of 5 quizzes and 2 papers taken during the semester which will account for 85% of your grade. Assigned homework and class participation will make up the remaining 10 and 5% respectively.

Home Work (HW) – Home work assigned on Monday and will be due on the following Monday unless otherwise modified in class; Homework will be turned in at the beginning of class. Students must SHOW ALL WORK FOR MATH RELATED PROBLEMS. HW will be graded and returned by the following Monday. Home work will receive a grade of 0, 1, 2, 3, or 4
None turned in = 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.

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.

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

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.

Quizzes will be assigned a value by the instructor; quiz grades will be the number of points earned on the quiz divided by the total value of the quiz. Points earned for each problem will be awarded in a similar manner as noted in the homework section.

Class Attendance is expected, although, while students will not be penalized for non-attendance (with the exception as noted above for labs) they will be responsible for material covered in their absence. It will be the students responsibility to determine what assignments that may have been missed.

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.

Academic Integrity – Unless indicated by specific assignments, by the instructor, for group projects, all work for assignments shall be that of the individual student. Cheating on quizzes or using the work of others without proper credit (plagiarism) for assignments, or other forms of academic dishonesty, as defined by the Student Handbook, is unacceptable. If, after evaluation of the potential infraction(s), consistent with the Student Handbook, a grade of "0" for the assignment may be assigned.

Disabilities – If you have a visible or hidden disability that may require classroom or test taking modifications you are encouraged to contact Student Services for assessment.