

ENVE 420 Municipal & Indus. Water Supp. & Waste Water Treat. Credit Hours: 4

Department: Mathematics, Physics and Engineering

Required or Elective (circle one)

Current Catalog Description:

Municipal and Industrial Water Supply and Waste Water Treatment. (3-3) Important water quality parameters relevant to water supply; design of hydraulic structures for treatment of water and waste water; treatment and distribution of residential and industrial water supplies; waste water treatment and disposal methods of municipal and industrial systems; operation of treatment plants; storm water management; and concepts of watershed approaches for water quality maintenance. Laboratory analysis of water quality analysis; design of hypothetical water supply and treatment systems; and field trips. Credit for both HYDR 420 and ENVE 420 will not be awarded. Prerequisite: CHEM 201, HYDR/ENVE 300, MATH 300 or concurrent registration. Lab fee \$15. Course fee \$10.

Course Schedule:

3 lecture hr/ wk, 3 lab hr/ wk

Coordinator:

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office hours:

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Pre/corequisites by Topic: (list course number, title, and specify if co-requisite)

CHEM 201 – Organic Chemistry I
HYDR/ENVE 300 – Mechanics of Fluids
MATH 311 – Probability and Statistics

Program Outcome and Course Learning Goals Map:

The Program Outcomes for Environmental Engineering are:

- A. an ability to apply knowledge of math, engineering & science
- B. an ability to design and conduct experiments, as well as to analyze and interpret data
- C. an ability to design system, component or process to meet needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- D. an ability to function on multi-disciplinary teams
- E. an ability to identify, formulate, and solve engineering problems
- F. an understanding of professional and ethical responsibility
- G. an ability to communicate effectively
- H. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- I. a recognition of need for, and ability to engage in life-long learning
- J. a knowledge of contemporary issues
- K. an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.
- L. a depth and breadth of knowledge in engineering and physics necessary to work in a multidisciplinary environment

Course Goals	Program Outcome(s):
Upon completion of this course with a C or better, students will	
1. Gain the knowledge and ability to conduct preliminary planning, design, and management of water and wastewater treatment systems	A, B, C, E, G, I, K, L
2. Understand the water quality standards relevant to water supply and wastewater treatment	A, B, E, G, I, J, K, L

3. Understand the hydraulic structures relevant to water supply and wastewater engineering	A, B, C, E, G, I, K, L
4. Understand characteristics and processes of natural water and wastewater	A, B, C, E, G
5. Learn the principles of water and wastewater treatment methods	A, B, C, E, G, K, L
6. Learn how to determine design flow rates and constituent loadings	A, B, C, J, K
7. Learn biological treatment of wastewater and biosolids management	A, B, C, J, K
8. Understand the basics of water treatment plant (WTP) and wastewater treatment plant (WWTP)	B, C, G, J

Topics (optional section of syllabus):

Topic	# Lec/Lab (approx.)

Contribution of Course to Meeting the Professional Requirement:

Math and Basic Sciences: 20%

Engineering Topics: 80%

General Education: 0%

Other: 0%

Other Information:

Class policies:

Exams:

Homework/Quizzes/Classwork:

Projects:

Absence policy:

Unexcused absences: Students who miss class without prior approval of their instructor will receive a grade of zero on missed in class assignments, quizzes, and/or exams.

University excused absences: Authorized absences must be approved by your instructor in advance of the absence, unless you have an emergency or illness, which still must be approved *immediately* upon your return. Make-up work must be completed outside of normal class hours within ONE WEEK following an excused absence. IT IS YOUR RESPONSIBILITY to see your instructor and make arrangements for make-up work.

Academic Honesty:

Cheating, plagiarism (submitting another person's materials or ideas as one's own), or doing work for another person who will receive academic credit are all-impermissible. This includes the use of unauthorized books, notebooks, or other sources in order to secure or give help during an examination, the unauthorized copying of examinations, assignments, reports, or term papers, or the presentation of unacknowledged material as if it were the student's own work. Disciplinary action may be taken beyond the academic discipline administered by the faculty member who teaches the course in which the cheating took place.

Students with Disabilities Policy:

It is the policy of Tarleton State University to comply with the Americans with Disabilities Act (ADA) and other federal, state, and local laws relative to the provision of disability services. Students with disabilities attending Tarleton State University may contact the Office of Disability Services at (254) 968-9478 to request appropriate accommodation. Furthermore, formal accommodation requests cannot be made until the student has been officially admitted to Tarleton State University.

Status of Continuous Improvement Review of this Course:

Prepared by: *Xixi Wang*

Date: *March 15, 2008*

Reviewed by: *Xixi Wang*

Date: *March 15, 2008*