Bemidji State University

ENVR 4200: Wastewater Treatment

A. COURSE DESCRIPTION

   Credits: 3
   Lecture Hours/Week: *.*
   Lab Hours/Week: *.*
   OJT Hours/Week: *.*
   Prerequisites: None
   Corequisites: None
   MnTC Goals: None

   Introduction to the operation of the principal methods and treatment processes of municipal and industrial wastewaters, and for the disposal of treated effluent and sludges, and other solid materials. Integration of fundamental principles of science with different aspects of sanitary technology. Prerequisites: BIOL 1212, CHEM 1112 or CHEM 2212, MATH 1170, or consent of instructor. BIOL 1212 is not required for Chemistry majors.

B. COURSE EFFECTIVE DATES: 08/21/1997 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

   1. Activated Sludge System
   2. Aeration and Gas Transfer
   3. Biological Treatment
   4. Biology of Wastewater
   5. Characteristics of Municipal Sewage
   6. Chemical Destruction and Detoxification
   7. Chemical Precipitation
   8. Chemistry of Wastewater
   9. Disinfection
   10. Examination of Water & Wastewater
   11. Industrial Waste Water Treatment
   12. Laboratory Chemical Analysis
   13. Lagoon Systems
   14. Pretreatment and Primary Treatment
   15. Sewage and Industrial Wastewater Characterization
   16. Sludge Treatment and Anaerobic Processes
   17. Stabilization and Ion Exchange
   18. Tertiary Treatment
   19. Trickling Filters
   20. Water Processing
   21. Water Quality Objectives and Standards
D. LEARNING OUTCOMES (General)
   1. apply scientific reasoning (in chemistry, biology, and physics) and quantitative methods to treat municipal and industrial wastewater and safely dispose of sludge and reuse treated effluent.
   2. demonstrate good communication and problem solving ability.
   3. attain higher learning in wastewater treatment technology.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   None

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   None noted