

Fundamental Concepts for Environmental Processes

Module Perspective

1. What is the topic?
 2. Who is (are) the audience(s)?
 3. What is the course goal?
 4. What are the learning objectives?
 5. What are you trying to cover?
 6. How do you plan to do this?
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1. The topic for this course module is fundamental concepts applicable to decentralized wastewater treatment and reuse. The module content is intended to prepare students for more in-depth study using other modules in this curriculum.
 2. The target audience includes upper division (junior and senior) undergraduates and graduate students from non-engineering disciplines or who have not had prior courses in wastewater treatment. Prerequisite courses include freshman chemistry, biology, and college algebra. Students from engineering backgrounds or with prior courses in wastewater treatment processes and/or technologies will likely not need this module.
 3. This course module aims to provide students with limited prior education in wastewater treatment or from non-engineering backgrounds with a basic understanding of select fundamental concept topics and how those topics relate to decentralized wastewater treatment.
 4. Upon completing this module, students will have a fundamental understanding of concepts pertinent to wastewater treatment which will enable them to more fully understand processes used for wastewater treatment, disposal, and reuse. After completion of this module students should be prepared for more in-depth study available in other curriculum modules.
 5. Topics included in this course module include an introduction to chemical and physical water characteristics, stoichiometry, wastewater biology, units, fluid mechanics, mass balance, first order reactions, and sedimentation.
 6. This course module includes text, lecture notes, example problems to be worked by the instructor, in-class problems to be worked by students, PowerPoint notes, and out-of-class problems.