

CEE 673

Diffusion and Mass Transfer In Environmental Systems

- Catalog data:** 20-CEE-673. Diffusion And Mass Transfer In Environmental Systems. 3 ug./gr. cr. To study the fundamentals of diffusion and mass transfer as related to the control of environmental pollutants. Topics covered include analysis of diffusion and mass transfer problems, diffusion in dilute and concentrated solutions, dispersion, mass transfer, determination of mass transfer coefficients, forced convection and gas/solid reactions.
- Prerequisites:** CEE senior or graduate status or permission of the instructor.
- Textbook:** E.L. Cussler (1997) *Diffusion; Mass Transfer in Fluid Systems*, Cambridge University Press, New York, New York
- References:** Journal articles and class handouts
- Coordinator:** Dr. Tim C. Keener, 472 ERC, 513-556-3676
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- Lecture or Lab Topics:**
1. Models for Diffusion (1 class)
 2. Diffusion in Dilute Solutions (6 classes)
 3. Diffusion in Concentrated Solutions (5 classes)
 4. Dispersion (3 classes)
 5. Values of Diffusion Coefficients (2 classes)
 6. Fundamentals of Mass Transfer (6 classes)
 7. Forced Convection (3 classes)
 8. Heterogeneous Chemical Reactions (2 classes)
- Computer Usage:** Students are required to use Mathematica for problem solutions.
- ABET criterion 3:** a, b, c, e, k
- ABET criterion 8:** a, b, e, f,
- Date prepared:** December 5, 2002 Last Update April 25, 2007