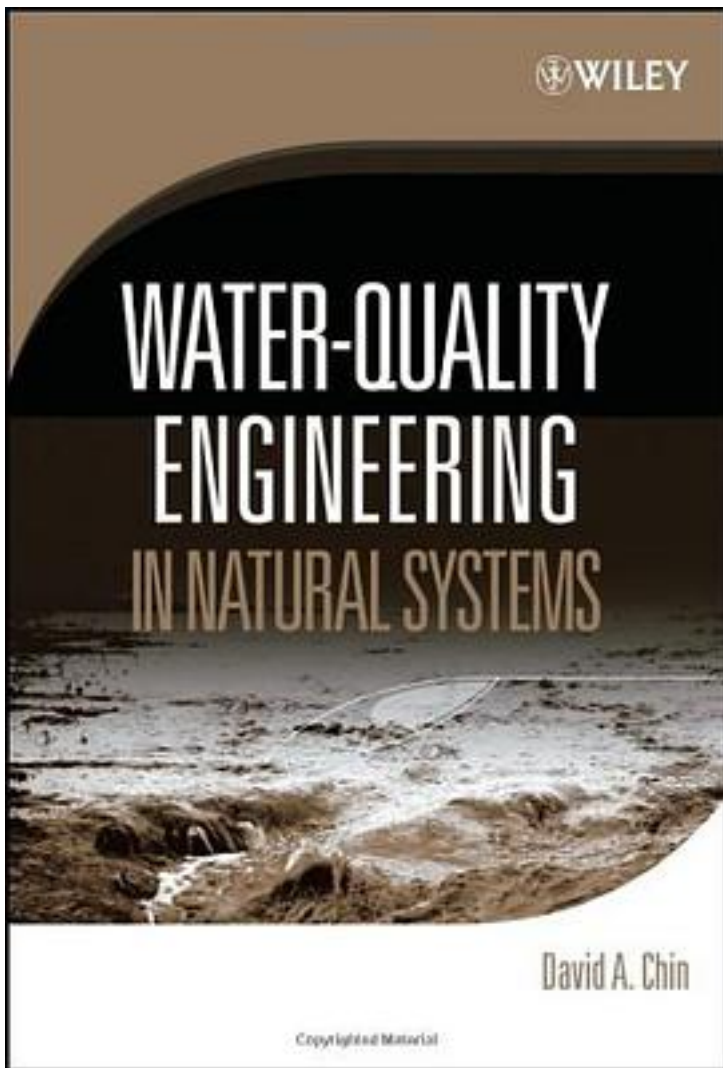


Water-Quality Engineering in Natural Systems



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FOCUSING ON CONTAMINANT FATE AND TRANSPORT, DESIGN OF ENVIRONMENTAL-CONTROL SYSTEMS, AND REGULATORY CONSTRAINTS

This textbook details the fundamental equations that describe the fate and transport of contaminants in the water environment. The application of these fundamental equations to the design of environmental-control systems and methodologies for assessing the impact of contaminant discharges into rivers, lakes, wetlands, ground water, and oceans are all covered. Readers learn to assess how much waste can be safely assimilated into a water body by developing a solid understanding of the relationship between the type of pollutant discharged, the characteristics of the receiving water, and physical, chemical, and biological impacts. In cases of surface runoff from urban and agricultural watersheds, quantitative relationships between the quality of surface runoff and the characteristics of contaminant sources located within the watersheds are presented.

Some of the text's distinguishing features include its emphasis on the engineering design of systems that control the fate and transport of contaminants in the water environment, the design of remediation systems, and regulatory constraints. Particular attention is given to use-attainability analyses and the estimation of total maximum daily loads, both of which are essential components of water-quality control in natural systems. Readers are provided with a thorough explanation of the complex set of laws and regulations governing water-quality control in the United States.

Proven as an effective textbook in several offerings of the author's class "Water Quality Control in Natural Systems," the flow of the text is carefully structured to facilitate learning. Moreover, a number of practical pedagogical tools are offered:

- * Practical examples used throughout the text illustrate the effects of controlling the quality, quantity, timing, and distribution of contaminant discharges into the environment
- * End-of-chapter problems, and an accompanying solutions manual, help readers assess their grasp of each topic as they progress through the text
- * Several appendices with useful reference material are provided, including current U.S. Water Quality Standards
- * Detailed bibliography guides readers to additional resources to explore particular topics in greater depth

With its emphasis on contaminant fate and transport and design of environmental-control systems, this text is ideal for upper-level undergraduates and graduate students in environmental and civil engineering programs. Environmental scientists and practicing environmental/civil engineers will also find the text relevant and useful.

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