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example problems

the basic concepts

and their

applications to fluid

flow, heat transfer,

mass transfer,

chemical reaction

engineering and

thermodynamics. A

balanced approach

is presented between

analysis and

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synthesis, students will understand how to use the solution in engineering analysis. Systematic derivations of the equations and the physical significance of each term are given in detail, for students to easily understand and

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follow up the material. There is a strong incentive in science and engineering to understand why a phenomenon behaves the way it does. For this purpose, a complicated real-life problem is

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*transformed into a
mathematically
tractable problem
while preserving the
essential features of
it. Such a process,
known as
mathematical
modeling, requires
understanding of the
basic concepts. This
book teaches*

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students these basic concepts and shows the similarities between them.

Answers to all problems are provided allowing students to check their solutions.

Emphasis is on how to get the model equation

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*representing a
physical*

*phenomenon and not
on exploiting various
numerical
techniques to solve
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equations. A
balanced approach
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analysis and
synthesis, students*

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*will understand how
to use the solution in
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derivations of the
equations as well as
the physical
significance of each
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detail Many more
problems and
examples are given*

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*than in the first
edition - answers*

provided

Presenting

engineering

fundamentals and

biological

applications in a

unified way, this

book provides

learners with the

skills necessary to

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*develop and
critically analyze*

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interactions, with
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concepts motivated*

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courses in mass

*transfer, separation
processes, transport
processes, and unit
operations. The
principles of mass
transfer, both
diffusional and
convective have been
comprehensively
discussed. The*

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application of these principles to separation processes is explained. The more common separation processes used in the chemical industries are individually described in separate chapters.

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provides a good understanding of the construction, the operating principles, and the selection criteria of separation equipment. Recent developments in equipment have been included as far as possible. The

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*procedure of
equipment design
and sizing has been
illustrated by simple
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overview of different
applications and
aspects of membrane
separation has also
been provided.*

*'Humidification and
water cooling',*

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*necessary in every
process industry, is
also described.*

*Finally, elementary
principles of
'unsteady state
diffusion' and mass
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accompanied by a
chemical reaction
are covered.*

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**machine and that
these experiences
can be described by
a set of elementary
processing steps
that prepare the
polymer for any of
the shaping
methods. On the
other hand, the
authors do
emphasize the**

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particular polymer
processing methods
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particular
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and shaping
mechanisms and
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Advanced Transport

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concluding with linear
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phenomena. Section
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authors depart from tradition by building on a presumed understanding of the relationships between the structure and properties of matter, particularly in the chapters devoted to the transport properties (viscosity, thermal conductivity, and

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