Design Engineer's Reference Guide: Mathematics, Mechanics, and Thermodynamics (Volume 3)

By Keith L. Richards

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Author Keith L. Richards believes that design engineers spend only a small fraction of time actually designing and drawing, and the remainder of their time finding relevant design information for a specific method or problem. He draws on his own experience as a mechanical engineering designer to offer assistance to other practicing and student engineers facing the same struggle. **Design Engineer's Reference Guide: Mathematics, Mechanics, and Thermodynamics** provides engineers with a roadmap for navigating through common situations or dilemmas.

This book starts off by introducing reference information on the coverage of differential and integral calculus, Laplace's transforms, determinants, and matrices. It provides a numerical analysis on numerical methods of integration, Newton–Raphson's methods, the Jacobi iterative method, and the Gauss–Seidel method. It also contains reference information, as well as examples and illustrations that reinforce the topics of most chapter subjects.

A companion to the *Design Engineer's Handbook* and *Design Engineer's Case Studies and Examples*, this textbook covers a range of basic engineering concepts and common applications including:

• Mathematics

• Numerical analysis

• Statics and kinematics

• Mechanical vibrations

• Control system modeling

• Basic thermodynamics

• Fluid mechanics and linkages

An entry-level text for students needing to understand the underlying principles before progressing to a more advanced level, **Design Engineer's Reference Guide: Mathematics, Mechanics, and Thermodynamics** is also a basic reference for mechanical, manufacturing, and design engineers.

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Review

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About the Author

Keith Richards is a retired mechanical design engineer who has worked in the industry for over 55 years. Initially he served an engineering apprenticeship with B.S.A. Tools, a company that manufactured a wide range of machine tools. On leaving B.S.A., he served as a freelance engineering designer in a wide range of industries that also included aluminum rolling mill design, industrial fork lift trucks, and the Hutton tension leg platform, an offshore oil production platform. In later years, Richards was involved in the aerospace industry working on projects covering aircraft undercarriages, environmental control systems for the military and commercial aircraft.

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