

## Fundamentals of Noise and Vibration Analysis for Engineers

Noise and vibration affects all kinds of engineering structures, and is fast becoming an integral part of engineering courses at universities and colleges around the world. In this second edition, Michael Norton's classic text has been extensively updated to take into account recent developments in the field. Much of the new material has been provided by Denis Karczub, who joins Michael as second author for this edition.

This book treats both noise and vibration in a single volume, with particular emphasis on wave-mode duality and interactions between sound waves and solid structures. There are numerous case studies, test cases and examples for students to work through. The book is primarily intended as a text book for senior level undergraduate and graduate courses, but is also a valuable reference for practitioners and researchers in the field of noise and vibration.



# Fundamentals of Noise and Vibration Analysis for Engineers

---

Second edition

**M. P. Norton**

School of Mechanical Engineering, University of Western Australia

and

**D. G. Karczub**

S.V.T. Engineering Consultants, Perth, Western Australia



**CAMBRIDGE**  
UNIVERSITY PRESS

CAMBRIDGE UNIVERSITY PRESS

Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo

Cambridge University Press

The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press, New York

[www.cambridge.org](http://www.cambridge.org)

Information on this title: [www.cambridge.org/9780521495616](http://www.cambridge.org/9780521495616)

© First edition Cambridge University Press 1989

© Second edition M. P. Norton and D. G. Karczub 2003

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First edition published 1989

Reprinted 1994

Second edition published 2003

*A catalogue record for this publication is available from the British Library*

ISBN 978-0-521-49561-6 hardback

ISBN 978-0-521-49913-2 paperback

Transferred to digital printing 2007

To  
our parents,  
the first author's wife Erica,  
and his young daughters Caitlin and Sarah

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.