

Cambridge University Press

978-0-521-89678-8 - Guided Explorations of the Mechanics of Solids and Structures: Strategies for Solving Unfamiliar Problems

James F. Doyle

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GUIDED EXPLORATIONS OF THE MECHANICS OF SOLIDS AND STRUCTURES

Strategies for Solving Unfamiliar Problems

This book tackles the question: How can an engineer with a powerful finite element program but modest background knowledge of mechanics solve unfamiliar problems?

Engineering educators will find this book to be a new and exciting approach to helping students engage with complex ideas. Practicing engineers who use finite element methods to solve problems in solids and structures will extend the range of problems they can solve as well as accelerate their learning on new problems.

This book's special strengths include

- A thoroughly modern approach to learning and understanding mechanics problems
- Comprehensive coverage of a large collection of problems ranging from static to dynamic and from linear to nonlinear, applied to a variety of structures and components
- Accompanying software that is sophisticated and versatile and is available for free on the accompanying CD and from the book's Web site (www.cambridge.org/doyle)
- Ability to complement any standard finite element textbook or course in solid and structural mechanics
- The use of simple models to understand complex problems

James F. Doyle is a professor in the School of Aeronautics and Astronautics at Purdue University. His main area of research is in experimental mechanics with an emphasis on the development of a new methodology for analyzing impact and wave propagation in complicated structures. The goal is to be able to extract the complete description of the wave and the dynamic system from limited experimental data. Special emphasis is placed on solving inverse problems by integrating experimental methods with computational methods (primarily finite element-based methods). He is a dedicated teacher and pedagogical innovator. He is the winner of the Frocht Award for Teaching and the Hetenyi Award for Research, both from the Society for Experimental Mechanics. Professor Doyle is a Fellow of the Society for Experimental Mechanics. This is his fifth book, after *Propagation in Structures*, Second Edition; *Static and Dynamic Analysis of Structures*; *Nonlinear Analysis of Thin-Walled Structures*; and *Modern Experimental Stress Analysis*.

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[More information](#)

*This book is dedicated to ALL
who have shared the ARC
at the LBC.*

Contents

Introduction	<i>page</i> 1
1 QED the Computer Laboratory	5
1.1 Brief Overview of the Mechanics of Structures	6
1.2 Installing and Running QED	13
1.3 Overview of QED	16
1.4 Supporting Programs	30
1.5 QED Guided Explorations	32
2 Static Analysis	35
2.1 Deformation of Structural Members	36
2.2 Stiffness Behavior of Thin-Walled Structures	49
2.3 Equilibrium of Beam and Frame Structures	59
2.4 Stress Analysis of Thin-Walled Structures	73
2.5 Stress Analysis of a Ring	92
2.6 Stress Concentrations and Singularities	102
3 Vibration of Structures	112
3.1 Introduction to Vibrations	113
3.2 Modes of Vibration	121
3.3 Prestressed Structures	130
3.4 Frequency Analysis of Signals	139
3.5 Effect of Mass and Gravity on Vibrations	147
3.6 Vibration of Shells	152
4 Wave Propagation	161
4.1 Introduction to Wave Propagation	163
4.2 General Exploration of Wave Speeds	173
4.3 Dispersion of Waves	183
4.4 Deep Waveguides	197
4.5 Relation Between Waves and Vibrations	206
4.6 Dynamic Stress Concentrations	213

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978-0-521-89678-8 - Guided Explorations of the Mechanics of Solids and Structures: Strategies for Solving Unfamiliar Problems

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Frontmatter

[More information](#)

x	Contents
5 Nonlinear Structural Mechanics	226
5.1 Nonlinear Geometric Behavior of Structures	227
5.2 Elastic-Plastic Response and Residual Stresses	246
5.3 Rubber Elasticity	253
5.4 Nonlinear Vibrations	264
5.5 Nonlinear Vibrations Under Gravity	275
5.6 Impact	283
6 Stability of the Equilibrium	297
6.1 Introduction to Elastic Stability	298
6.2 Eigenanalysis of Buckling	308
6.3 Stability and Load Imperfections	328
6.4 Elastic-Plastic Buckling	335
6.5 Stability of Motion in the Large	349
6.6 Dynamic Instability Under Follower Loads	364
7 Constructing Simple Analytical Models	376
7.1 Fundamentals of Solid Mechanics	377
7.2 Stationary Principles in Mechanics	386
7.3 Models, Similitude, and Dimensional Analysis	397
7.4 Some Simple Models With the Ritz Method	404
7.5 Mechanical Models for Postbuckling	416
7.6 Simple Models for Loadings	425
7.7 QED's Gallery of ODEs	435
<i>References</i>	439
<i>Index</i>	445

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