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Titolo	Business Optimization Using Mathematical Programming : An Introduction with Case Studies and Solutions in Various Algebraic Modeling Languages / / by Josef Kallrath
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ISBN	3-030-73237-1
Edizione	[2nd ed. 2021.]
Descrizione fisica	1 online resource (653 pages)
Collana	International Series in Operations Research & Management Science, , 2214-7934 ; ; 307
Disciplina	519.7
Soggetti	Operations research Management science Mathematical optimization Operations Research and Decision Theory Operations Research, Management Science Continuous Optimization
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Optimization: Using Models, Validating Models, Solutions, Answers -- From the Problem to its Mathematical Formulation -- Mathematical Solution Techniques -- Problems Solvable Using Linear Programming -- How Optimization is Used in Practice: Case Studies in Linear Programming -- Modeling Structures Using Mixed Integer Programming -- Types of Mixed Integer Linear Programming Problems -- Case Studies and Problem Formulations -- User Control of the Optimization Process and Improving Efficiency -- How Optimization is Used in Practice: Case Studies in Integer Programming -- Beyond LP and MILP Problems -- Mathematical Solution Techniques - The Nonlinear World -- Global Optimization in Practice -- Polyhedral Modeling and Solution Approaches -- Cutting & Packing beyond and within Mathematical Programming -- The Impact and Implications of Optimization -- Concluding Remarks and Outlook.
Sommario/riassunto	This book presents a structured approach to formulate, model, and

solve mathematical optimization problems for a wide range of real world situations. Among the problems covered are production, distribution and supply chain planning, scheduling, vehicle routing, as well as cutting stock, packing, and nesting. The optimization techniques used to solve the problems are primarily linear, mixed-integer linear, nonlinear, and mixed integer nonlinear programming. The book also covers important considerations for solving real-world optimization problems, such as dealing with valid inequalities and symmetry during the modeling phase, but also data interfacing and visualization of results in a more and more digitized world. The broad range of ideas and approaches presented helps the reader to learn how to model a variety of problems from process industry, paper and metals industry, the energy sector, and logistics using mathematical optimization techniques.
