1.	Record Nr.	UNINA9910254898803321
	Autore	Cottle Richard W
	Titolo	Linear and Nonlinear Optimization / / by Richard W. Cottle, Mukund N. Thapa
	Pubbl/distr/stampa	New York, NY : , : Springer New York : , : Imprint : Springer, , 2017
	ISBN	1-4939-7055-0
	Edizione	[1st ed. 2017.]
	Descrizione fisica	1 online resource (XXXI, 614 p. 58 illus.)
	Collana	International Series in Operations Research & Management Science, , 0884-8289 ; ; 253
	Disciplina	658.403
	Soggetti	Operations research
		Decision making
		Management science
		Mathematical optimization
		Mathematical models
		Operations Research/Decision Theory
		Operations Research, Management Science
		Optimization
		Mathematical Modeling and Industrial Mathematics
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di bibliografia	Includes bibliographical references (pages 587-602) and index.
	Nota di contenuto	Chapter 1. LP Models and Applications -- Chapter 2. Linear Equations and Inequalities -- Chapter 3. The Simplex Algorithm -- Chapter 4. The Simplex Algorithm Continued -- Chapter 5. Duality and the Dual Simplex Algorithm -- Chapter 6. Postoptimality Analysis -- Chapter 7. Some Computational Considerations -- Chapter 8. NLP Models and Applications -- Chapter 9. Unconstrained Optimization -- Chapter 10. Descent Methods -- Chapter 11. Optimality Conditions -- Chapter 12. Problems with Linear Constraints -- Chapter 13. Problems with Nonlinear Constraints -- Chapter 14. Interior-Point Methods.
	Sommario/riassunto	This textbook on Linear and Nonlinear Optimization is intended for graduate and advanced undergraduate students in operations research and related fields. It is both literate and mathematically strong, yet requires no prior course in optimization. As suggested by its title, the book is divided into two parts covering in their individual chapters LP

Models and Applications; Linear Equations and Inequalities; The Simplex Algorithm; Simplex Algorithm Continued; Duality and the Dual Simplex Algorithm; Postoptimality Analyses; Computational Considerations; Nonlinear (NLP) Models and Applications; Unconstrained Optimization; Descent Methods; Optimality Conditions; Problems with Linear Constraints; Problems with Nonlinear Constraints; Interior-Point Methods; and an Appendix covering Mathematical Concepts. Each chapter ends with a set of exercises. The book is based on lecture notes the authors have used in numerous optimization courses the authors have taught at Stanford University. It emphasizes modeling and numerical algorithms for optimization with continuous (not integer) variables. The discussion presents the underlying theory without always focusing on formal mathematical proofs (which can be found in cited references). Another feature of this book is its inclusion of cultural and historical matters, most often appearing among the footnotes. "This book is a real gem. The authors do a masterful job of rigorously presenting all of the relevant theory clearly and concisely while managing to avoid unnecessary tedious mathematical details. This is an ideal book for teaching a one or two semester masters-level course in optimization – it broadly covers linear and nonlinear programming effectively balancing modeling, algorithmic theory, computation, implementation, illuminating historical facts, and numerous interesting examples and exercises. Due to the clarity of the exposition, this book also serves as a valuable reference for self-study." Professor Ilan Adler, IEOR Department, UC Berkeley "A carefully crafted introduction to the main elements and applications of mathematical optimization. This volume presents the essential concepts of linear and nonlinear programming in an accessible format filled with anecdotes, examples, and exercises that bring the topic to life. The authors plumb their decades of experience in optimization to provide an enriching layer of historical context. Suitable for advanced undergraduates and masters students in management science, operations research, and related fields." Michael P. Friedlander, IBM Professor of Computer Science, Professor of Mathematics, University of British Columbia.