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Titolo	Production yearbook - 1986 / FAO
Pubbl/distr/stampa	Rome, : F.A.O., 1987
Descrizione fisica	xlix,306 p. ; 28 cm
Lingua di pubblicazione	Italiano
Formato	Materiale a stampa
Livello bibliografico	Monografia

2. Record Nr. UNINA9911020443603321

Titolo	Building and solving mathematical programming models in engineering and science / / Enrique Castillo ... [et al.]
Pubbl/distr/stampa	New York, : Wiley, 2002
ISBN	9786613331922 9781283331920 1283331926 9780471225294 0471225290 9780471461654 0471461652
Descrizione fisica	1 online resource (568 p.)
Collana	Pure and applied mathematics
Altri autori (Persone)	CastilloEnrique <1946->
Disciplina	620/.001/5197
Soggetti	Programming (Mathematics) Engineering models
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 533-540) and index.
Nota di contenuto	Building and Solving Mathematical Programming Models in Engineering and Science; Contents; Preface; I Models; 1 Linear Programming; 1.1 Introduction; 1.2 The Transportation Problem; 1.3 The Production

Scheduling Problem; 1.3.1 Production Scheduling Problem 1; 1.4 The Diet Problem; 1.5 The Network Flow Problem; 1.6 The Portfolio Problem; 1.7 Scaffolding System; 1.8 Electric Power Economic Dispatch; Exercises; 2 Mixed-Integer Linear Programming; 2.1 Introduction; 2.2 The 0-1 Knapsack Problem; 2.3 Identifying Relevant Symptoms; 2.4 The Academy Problem; 2.5 School Timetable Problem
2.6 Models of Discrete Location2.7 Unit Commitment of Thermal Power Units; Exercises; 3 Nonlinear Programming; 3.1 Introduction; 3.2 Some Geometrically Motivated Examples; 3.2.1 The Postal Package Example; 3.2.2 The Tent Example; 3.2.3 The Lightbulb Example; 3.2.4 The Surface Example; 3.2.5 The Moving Sand Example; 3.3 Some Mechanically Motivated Examples; 3.3.1 The Cantilever Beam Example; 3.3.2 The Two-Bar Truss Example; 3.3.3 The Column Example; 3.3.4 Scaffolding System; 3.4 Some Electrically Motivated Examples; 3.4.1 Power Circuit State Estimation; 3.4.2 Optimal Power Flow
3.5 The Matrix Balancing Problem3.6 The Traffic Assignment Problem; Exercises; II Methods; 4 An Introduction to Linear Programming; 4.1 Introduction; 4.2 Problem Statement and Basic Definitions; 4.3 Linear Programming Problem in Standard Form; 4.3.1 Transformation to Standard Form; 4.4 Basic Solutions; 4.5 Sensitivities; 4.6 Duality; 4.6.1 Obtaining the Dual from a Primal in Standard Form; 4.6.2 Obtaining the Dual Problem; 4.6.3 Duality Theorems; Exercises; 5 Understanding the Set of All Feasible Solutions; 5.1 Introduction and Motivation; 5.2 Convex Sets; 5.3 Linear Spaces
5.4 Polyhedral Convex Cones5.5 Polytopes; 5.6 Polyhedra; 5.6.1 General Representation of Polyhedra; 5.7 Bounded and Unbounded LPP; Exercises; 6 Solving the Linear Programming Problem; 6.1 Introduction; 6.2 The Simplex Method; 6.2.1 Motivating Example; 6.2.2 General Description; 6.2.3 Initialization Stage; 6.2.4 Elemental Pivoting Operation; 6.2.5 Identifying an Optimal Solution; 6.2.6 Regulating Iteration; 6.2.7 Detecting Unboundedness; 6.2.8 Detecting Infeasibility; 6.2.9 Standard Iterations Stage; 6.2.10 The Revised Simplex Algorithm; 6.2.11 Some Illustrative Examples
6.3 The Exterior Point Method6.3.1 Initial Stage; 6.3.2 Regulating Stage; 6.3.3 Detecting Infeasibility and Unboundedness; 6.3.4 Standard Iterations Stage; 6.3.5 The EPM Algorithm; 6.3.6 Some Illustrative Examples; Exercises; 7 Mixed-Integer Linear Programming; 7.1 Introduction; 7.2 The Branch-Bound Method; 7.2.1 Introduction; 7.2.2 The BB Algorithm for MILPP; 7.2.3 Branching and Processing Strategies; 7.2.4 Other Mixed-Integer Linear Programming Problems; 7.3 The Gomory Cuts Method; 7.3.1 Introduction; 7.3.2 Cut Generation; 7.3.3 The Gomory Cuts Algorithm for an ILPP; Exercises
8 Optimality and Duality in Nonlinear Programming

Sommario/riassunto

Fundamental concepts of mathematical modelingModeling is one of the most effective, commonly used tools in engineering and the applied sciences. In this book, the authors deal with mathematical programming models both linear and nonlinear and across a wide range of practical applications.Whereas other books concentrate on standard methods of analysis, the authors focus on the power of modeling methods for solving practical problems-clearly showing the connection between physical and mathematical realities-while also describing and exploring the main concepts and tools at work.